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ABSTRACT

A basic skills needs assessment developed a picture of the basic skills levels and needs of the construction industry in British Columbia and the Yukon. The three parts of the assessment were interviews with business managers and managers of other programs provided through joint labor/management initiatives, a questionnaire administered to training plan coordinators or their designates in the member unions, and selected focus groups. Responses to interviews and questionnaires indicated that, although each trade was task specific, many shared processes and functions. A positive correlation was found between numbers of members and instructors. Workers in many trades, especially laborers, had the opportunity to move between and among various jobs in the trade; workers in other trades tended to concentrate in one skill area. Unions were heavily involved in trades training; all but one offered health and safety training. Technological change was revolutionizing every part of the construction industry. A need was expressed for courses dealing with effective oral communications; how to use forms, graphs, and charts; and critical thinking and problem solving. Recommendations were made regarding courses, research, and advisory and other services. (Appendixes to the first part of the report include construction industry support structure and the needs assessment questionnaire. The second part of the report provides worker comments, the management perspective, use of computer-assisted learning, and recommendations based on these additional materials.) (YLB)

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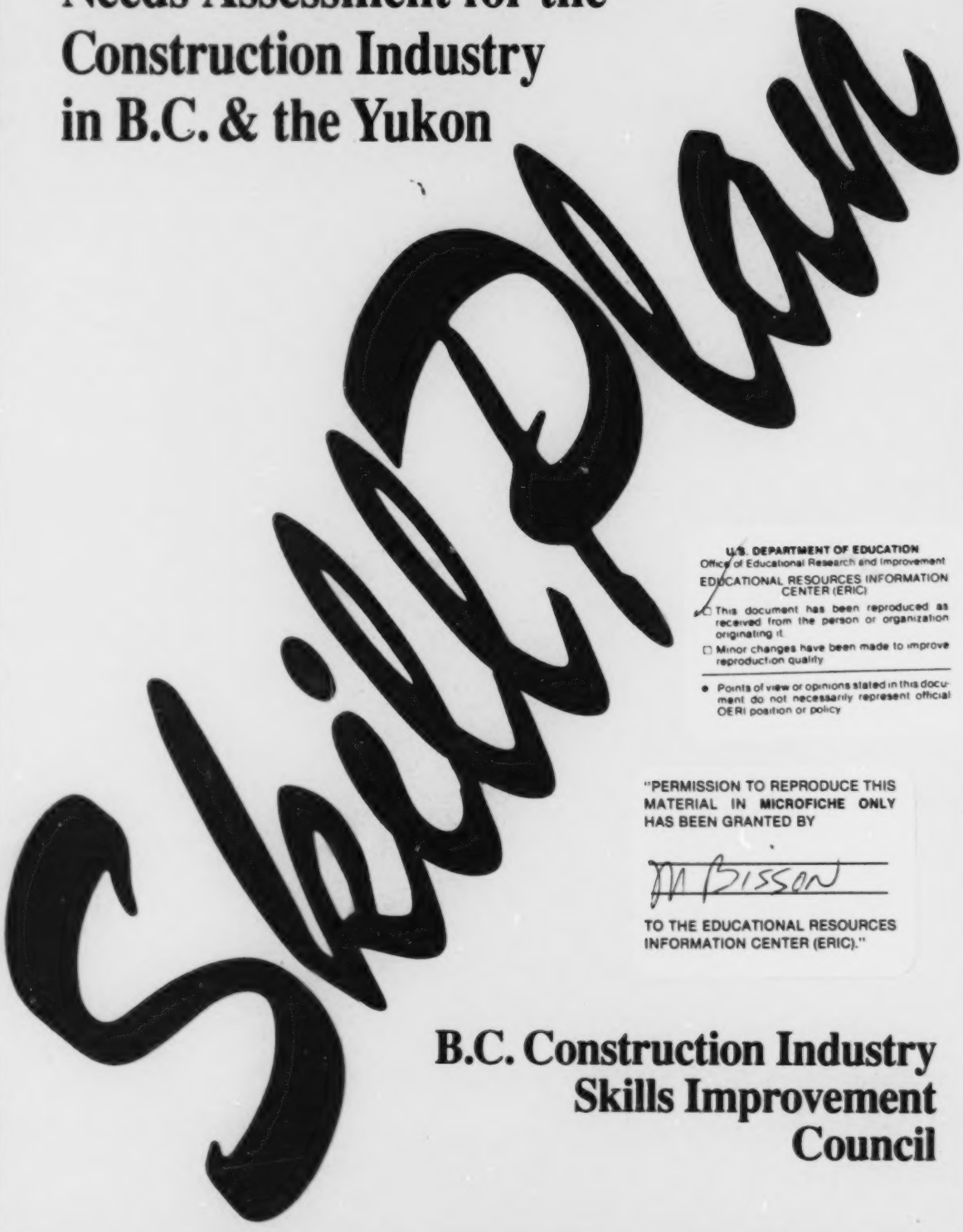
Needs Assessment for the Construction Industry in B.C. & the Yukon



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INTRODUCTION

Conducting a Basic Skills Needs Assessment for a whole industry is a large task. While it seemed daunting at first, each step built upon the one before, finally revealing a clear picture of the basic skills levels and needs of the construction industry in BC and the Yukon.

Training Plan Coordinators provided information on a variety of training initiatives. These interviews displayed the range and complexity of training which is presently being offered to unionized members of the industry and indicated the possibilities for integrating basic skills development into the context of trades training. This was particularly important since research has shown that basic skills training which takes place within the context of people's lives and work is more successful than a less targeted type of instruction.

Our first task was to separate the technical trades skills from basic skills (broadly defined). Trades training is the responsibility of the various trades training plans in place in the organized construction industry, a responsibility those joint labour/management training plans take seriously. As its title suggests, this Needs Assessment deals with basic skills upgrading needs and ways to respond to those needs.

Focus groups with Carpenters, Plumbers, Pipefitters, Operating Engineers and Labourers provided yet another dimension. Members were anxious to talk about their basic skills training needs. Some were more up-beat than others about training in general and basic skills training in particular. In one focus group, the word "literacy" and its unfortunate opposite seemed to place a damper on debate, which was only overcome when attention was deflected from a personal to a more impersonal level. The focus groups were particularly helpful in providing a human face to basic skills training issues. Even if we already knew that the introduction of lasers, fibre optics, micro processors and new chemicals had placed additional stresses on the industry's members, the issue really came alive when members were able to give personal examples of basic skills upgrading needs. To some, basic skills development was an empowerment issue; to others a survival issue.

The management perspective was diverse. Some companies saw basic skills as being the responsibility of the school system and were not anxious to get involved in upgrading initiatives; others took the view that the workers we now have are the workers we will have for the foreseeable future and it is therefore in management's best interests to facilitate basic skills upgrading as a necessary prelude to higher trades competence. The fact that the construction workforce is highly mobile is a complicating factor which must be taken into account when assessing how far management is ready to go to upgrade workers who "come and go" depending on the work cycle.

The geographic factor was also taken into account in the Basic Skills Needs Assessment. Serving the Lower Mainland where an excellent training infrastructure is already in place presents one set of challenges; serving remote and northern communities presents another. Visits to Castlegar and Whitehorse provided some insight into the distinct needs faced by a construction camp in a small community, on the one hand, and a Territorial capital on the other.

We explored options for delivery of basic skills instruction both on the Lower Mainland and in the Interior. Partnerships with various institutions and community based organizations offer one avenue for action, as do the setting up of computer-based or computer-assisted learning programs. The *SkillPlan* partnership with the OLA which was begun in December was a valuable contribution to the Needs Assessment, proving that, for many learners, computers provide an exciting and desirable aspect of basic skills upgrading.

The special needs of the BC Construction Industry Health & Safety Council and the BC Construction Industry Rehabilitation Plan were also paramount in the Needs Assessment. Reading requirements of significant difficulty occur both in the context of health and safety courses and rehabilitation plan counselling. These needs are just as important to the industry's future as the more job related needs.

The Basic Skills Needs Assessment was wide ranging in scope. Needs were identified and recommendations crafted to respond to those needs. We are proud of the way in which the industry cooperated to make the needs known. There was an openness to the idea of discussing basic skills within the context of evolving technology and workforce change. Many workers expressed interest in upgrading and in helping to put aside some of the barriers to training which have presented obstacles in the past. Unions and management also expressed interest in removing barriers to training and retraining.

There are many recommendations in this report - recommendations concerning courses, English as a second language, promotion, research, Clear Language, and computer learning opportunities, to name just a few.

Some people might read the plethora of recommendations as indicating that the industry is in desperate need if it requires so many approaches to solutions. That is not the case. The Needs Assessment revealed an industry peopled with highly competent and motivated workers. Any one who doubts the high skill level of the industry need only go to a construction site and watch the finely tuned symphony of teamwork which takes place day by day as an excavation is replaced by steel and wood and mortar to become the finished reality of the architect;s dream and the engineer's plans. The recommendations in this Needs Assessment contribute to helping these competent people retain their command of the process of change instead of being swamped by the increasing pace of change coming at the industry.

The scope of the recommendations reflects the complexity of the industry - an industry in which the fine accuracy of the Carpenter shares pride of place with the agility of the Ironworker; where the diversity of the Labourer's functions exists side by side with the highly specialized world of the Elevator Constructor; where the patience of the Cement Mason vies with the eclecticism of the Electrician and the responsibility of the Operating Engineer. It reflects as well the realisation that basic skills upgrading has many dimensions, and that individual needs do not all fall into the same narrow parameters.

This is an industry which requires that its workers take command of change. The workforce takes pride in its ability to do so. It is the constant change which drives the need for continual upgrading in basic and trade skills.

We hope that the Basic Skills Needs Assessment will motivate labour, management and workers to unite in placing basic skills acquisition and enhancement high on the agenda in building worker futures and promoting industry development and growth.

BRITISH COLUMBIA AND YUKON TERRITORY CONSTRUCTION INDUSTRY

BASIC SKILLS NEEDS ASSESSMENT

PART I

Prepared through an IAS Agreement with funding from the National Literacy Secretariat and Labour Canada
by Glenda Lewis, *SkillPlan* Skills Analyst
with support provided by the Building and Construction Trades Department, AFL/CIO, Canadian Office

Sample Copy

SUBMITTED BY

Jim Lippert, Executive Director
British Columbia Construction Industry Skills Improvement Council

Approved June 23, 1992 by *SkillPlan* Board of Directors

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A. FOREWORD

A DEFINITION OF BASIC SKILLS

There are many definitions of basic skills just as there are many definitions of literacy. To some people, these terms refer to only the most elemental skills - such as being able to read and write the alphabet and sign one's own name. To others, basic skills and literacy are broadly defined. Under the broad definition, basic skills and literacy are on a continuum - a continuum which allows for individual strengths and differences. One person may exhibit strong mathematical skills while being less proficient in reading and writing. For another, reading comprehension may be advanced while mathematical reasoning is less developed. Both the federal government and the government of the Province of British Columbia use the broad definition in their efforts to come to grips with these issues.

The basic skills continuum changes as society changes. At one time computer skills would not have been considered basic - but they are fast becoming as important as basic calligraphy was to the monks before the invention of the printing press. And, just as the basic skills continuum is diverse, so is our own individual response to upgrading our skills. For working people who have been outside the formal school system for many years, and who are experiencing changes in work systems and processes, the challenge of upgrading is particularly intense.

Each industry has its own basic skills demands and requirements. In the construction industry, the framework of basic skills extends beyond the fundamentals of reading, writing and maths. It extends as well to critical thinking, problem solving, teamwork and oral communication. **The document which follows is based on the broad definition of skills and the continuum which gives it meaning to all of us.**

B. THE CONTEXT

Increasingly, the world of work is bearing the imprint of changing technology and increased competitiveness. Educational and technical standards which once served workers well now may be barely adequate to sustain present jobs and future employability. There is a growing realisation by workers in all sectors of the economy that upgrading has become an essential part of life. Employers are demanding greater skills of new entrants to the job market and are seeking heightened skills of workers already in the workplace. Both employers and unions are addressing the challenge of training and retraining.

This need is particularly felt in the construction industry which has been affected by technological change in many ways. You have only to look at several areas of the industry to see how change is exemplified. Laser technology is affecting the work of the machinist, while elevator constructors are moving from conventional relay logic equipment to solid state equipment and microprocessors. Even the labourer, traditionally regarded as the incumbent of one of the lesser skill areas, is affected by new technology, as in the use of "total stationing units" to replace the old transit and level used in survey work. The "total stationing unit" shows information on a screen, and math is then used to chart and graph it and transfer it to a field book. Virtually no skill or trade area is untouched by change.

The collective agreements in the industry encourage technological change as a means of increasing economic efficiencies. Training and retraining programs are no strangers to the construction industry. Indeed, the construction industry has piloted the use of the training trust fund, jointly funded by business, labour and employees to deliver a wide range of technical and trades expertise to union members in the trades. Such training has, however, for the most part concentrated on the practical and technical aspects of jobs. Little attention has been paid to the basic skills of reading, writing, numeracy and oral communication which are fundamental to successful work and the base of effective training.

SkillPlan was established to look at this vital area of basic skills acquisition and enhancement. The identification of the skills which workers need and the skills which workers have will help to determine training requirements and priorities. In addition, the whole area of worker aspirations forms part and parcel of an effective approach to training.

Basic skills have often been looked upon as disembodied - as part of a general education obtained in or through the schools and quite foreign to the world of work. The analysis of skills which follows will be looking at basic skills from an entirely different perspective. Our view is that basic skills and trades skills are integrated parts of one whole, and that basic skills can no more be ignored in creating the whole worker than can the prized technical skills.

The *SkillPlan* agenda will rest on this view and will build upon the concept of lifelong learning.

C. THE PROCESS

The basic skills needs assessment is made up of three parts:

(1) interviews with business managers and their designates with employer groups and managers of other programs provided through joint labour/management initiatives (e.g.: BC Construction Industry Health & Safety Council, BC Construction Industry Rehabilitation Plan, and Trades Training Plans)

(2) a questionnaire administered to training plan coordinators or their designates in the member unions, and

(3) selected focus groups of members.

The questionnaires were distributed and interviews conducted in November and December, 1991. The questionnaire sought responses to 27 questions - See Appendix 2.

Focus groups were conducted in January/February of 1992 and are the subject of a separate report.

The Basic Skills Needs Assessment was carried out for *SkillPlan* by Glenda Lewe who is seconded to the Building and Construction Trades Department, AFL/CIO, Canadian Office, and who is the Skills Analyst for *SkillPlan*.

This report is based on the responses to the initial interviews and the Needs Assessment Questionnaire.

Questionnaires were distributed to all member unions of the British Columbia and Yukon Territory Building and Construction Trades Council. Sixteen responses were received and analyzed, covering the following areas of specialisation:

Sheet Metal, Painters, Bricklayers, Glaziers, Machinists, Cement Masons, IBEW, Elevator Constructors, Ironworkers, Lathers, Operating Engineers, Boilermakers, Carpenters, Labourers, Heat and Frost Insulators, and Plumbers and Pipefitters.

While several responses were received by fax, every effort was made to receive as much information as possible in a personal or telephone interview. This method permitted the Skills Analyst to probe areas of particular relevance and obtain more complete and thoughtful responses.

Completed questionnaires will not be included with this report in order to protect the confidentiality of respondents. Every effort has been made, however, to reflect accurately the information provided to us thus far and much of the information is directly ascribed to individual respondents. In other cases, where information was more sensitive, the name of the union has been withheld. The choice "to ascribe or not to ascribe" was made by the Skills Analyst.

D. OVERVIEW OF QUESTIONNAIRE RESPONSES

General Information - Questions 1 - 6

1. What are the various jobs that your members in British Columbia do? How many members are there in your union in B.C.?

The intention of this question was to obtain a view of the main functions of the various trades and the size of their membership.

The response indicated the complexity of many jobs and trades. There are 53 occupations in the Operating Engineer category for instance (ranging from operating backhoes, graders and cranes to welding and heavy duty mechanics), and some 150 occupational choices for labourers. The Labourers' jobs range from flagging to rigging, from rakesman to asphalt applying.

The multi-facetted nature of many trades was also evident. For example, the Elevator Constructor is involved in three very diverse functions - the construction, maintenance and service of elevators, escalators and moving sidewalks.

Diversity is also a major facet for members of the IBEW who, besides doing traditional construction electrical work, also work with gas and the electrical aspects of utilities, as well as with sound communications such as nurse call systems, intercoms and cablevision. As in many of the trades, the IBEW functions go beyond the construction industry and reach out to other areas such as motor winding and servicing business machines and computers. Machinists and Aerospace Workers also have a diverse mandate which includes mechanical installation and repairs, modifications, and speeding up pulp and paper machines.

"Installation" and "fabrication" are important words for construction workers. Members of the UA (Plumbers and Pipefitters) install piping, equipment, tanks, pumps, hangers and all items related to the piping industry. Lathers install interior and exterior walls and ceiling systems, while Glaziers install glass as well as performing the following functions - manufacture and installation of surrounding metal, fabrication and installation of storefront materials, curtain wall systems, fabrication and installation of barrel vaults (round skylights), fabrication and installation of all skylight systems, total vision systems (glass against glass) and structural glazing. Fabrication (of kitchen equipment) is also part of the Sheet Metal trade, along with functions relating to heating and ventilation.

The Boilermakers' trade, which traces back to the invention of steam as a source of heat and power, also requires installation, in this case, the installation of boilers in, for example, oil rigs, pulp mills and refineries. Welding, rigging and fitting are also required.

Welding is common to many trades, including Boilermakers, Operating Engineers, Carpenters and Ironworkers. Ironworkers also work with structural steel erection and reinforcing steel.

The Carpenters' trade is the one most often thought of when a layman thinks of construction. Formwork, framework, finishing interior systems, insulation, rigging, signalling and scaffolding are all part of the carpentry trade, with several of these same aspects being found as well in the jobs of Heat and Frost Insulators and Labourers.

Painters, Bricklayers and Cement Masons work in an area where chemicals and epoxy are increasingly omnipresent. Painters have added sandblasting, sign shops and asbestos removal to their more standard line of work, while Bricklayers have added precast repairs and sandblasting to their well known trade in brick, stone, marble and granite. Refractory work (repair to brickwork in kilns and boilers) is also part of the Bricklayers' trade. The Cement Masons lay and finish cement, as well as plastering and working with exposed aggregate, terrazzo and marble.

The Culinary workers serve the construction camps as chefs, cooks, janitors, room service personnel, camp attendants, and general cleaning staff. They form a small part of the union's membership, with the larger part serving in hotels and catering. The construction side of the Teamsters Union is also part of a much larger whole.

The number of union members differs widely depending on the trade. Numbers quoted were estimates rather than exact counts, and are here listed from highest number to lowest number.

Carpenters	11,500	members
Operating Engineers	10,500	members
Labourers	10,000	active members
Teamsters	10,000	
Pipefitters, Plumbers	5,000	
IBEW (Loc. 213)	4,500	(perhaps 60% of provincial total)
Painters	1,600	
Ironworkers	1,500	
Boilermakers Loc. 359	1,400	members (B.C. and Yukon)
Lathers	1,200	(province wide)
Bricklayers	800	

Glaziers	750	(500 outside agreement: installation & glazing) (250 inside agreement: manufacturing the product & cutting the metal)
Heat & Frost	500	
Cement Masons	420	active members
Elevator Constructors Local 82	410	members (B.C. and Yukon)
Machinists	350	(dispatch system - construction)
Culinary Workers	329	(camp section)

2. Do members move between and among job classifications, or do they tend to stick to one skill area?

"The more skilled they are, the greater the mobility."

The purpose of this question was to assess the degree to which workers are multi-skilled and the degree to which they are able to tailor their work life to their own interests and preferred skills. This information will be useful in determining approaches to basic skills training since it will indicate the range of technical content into which basic skills development material may be integrated.

NOTE: No value judgement or preferred choice is being suggested between "moving around between and among job classifications" or "sticking to one skill area". Differences in approach for the various trades will be influenced by many variables.

Those who indicated a concentration in one skill area were Sheet Metal Workers, Painters, Cement Masons, Electrical Workers (IBEW), and members of the United Association of Plumbers and Pipefitters. Cement Masons indicated that they were "one skill area but multi company" and this reflects the reality of the construction industry in general. It is rare for IBEW workers to move between specialty areas; the training process is for individual jobs and there is a trade classification and rates scale for each one. Most members of the United Association (UA) work within a job classification, that is, as steamfitters, plumbers, welders, riggers or in instrumentation. Similarly, Culinary workers tend to stay within one area - either janitorial and cleaning or the kitchen section.

Boilermakers indicated that welders tend to stick to their specialty, while riggers and fitters move around. Teamsters' members move throughout the industry jurisdiction.

Operating Engineers learn to operate many different kinds of equipment, sometimes specializing in a skill grouping such as earth moving or equipment repair. Labourers are multi-skilled, moving around within the various labourer jobs. Elevator Constructors display some mobility, but mostly one stays in one area - maintenance/service or construction. The evolution is toward maintenance and service.

Ironworkers, Machinists, Carpenters, Heat and Frost Insulators, Glaziers, Bricklayers and Lathers exhibit mobility between and among skill areas. Bricklayers, for instance, can move from one specialty area to another - from refractory to building bricks and blocks, from corrosion work to epoxy floors and walls and heavy industrial tile. Lathers sometimes wish to specialize, but in a recession are not allowed that luxury and "have to do everything" within their trade (ceilings and walls).

3. Which of the following types of training are being offered:
   A. - trades training
   B. - ESL (English as a Second Language)
   C. - health and safety training?

All respondents save one mentioned that trades training and health and safety training are offered. The exception was the Cement Masons for whom no training is offered other than WHMIS and a 3 hour course on Hilti Gun use.

Descriptions of trades training formed the greater part of the response to this question.

A. TRADES TRAINING

"Maybe five or six per cent of our members have difficulty with technical and exam requirements. Usually the technical weakness and the exam weakness go together. Literacy is at the core."

"Some do poorly on the test because of classroom tension, even though they may be excellent on practical work."

Trades training for apprentices and journeymen was described. Here are some highlights. (Since the comments are so specific to the trade, the respondents are identified in this section.)

Bricklayers

"The apprenticeship is 3 years - 5 weeks in school each year and the rest of the time at work. The training is in all specialty areas except precast and tiles. Refractory and corrosion instruction is done by the mill (employer), also WHMIS."

Glaziers

"The trades training is trade specific to glazing - one for each skill. There are 23 courses for journeymen....Apprentices get most of their training through the provincial government - they go to BCIT for six weeks in each of three years."

Machinists

"While the majority of trades training is done at the apprentice level, we have a course in "Optiline" (equipment for rotating assemblies such as pumps and turbines). Two trainers do it. We also enable special courses when there is lots of unemployment. There is a course on optical alignment (transits, level), and welding upgrading. These courses have been funded through the agreement and a joint management/union committee."

Cement Masons

"The union does not provide formalized trades training. Generally, workers learn on the site with older workers.... There is not a course on the use of power tools, power trowels and vibrators, but there should be because these tools are dangerous."

IBEW

"There is an apprenticeship system with 1200 hours minimum - two months of day school for four years, and the rest of the time on jobs. There is a Joint Training Committee made up of three union members and three contractor representatives. They have to obtain the requisite hours to be journeymen, but there are competency based exams which they must pass."

Elevator Constructors

"There is an in-house program for trades training. It runs as a night school, with 4 mandatory courses over 4 years of training. Each one is on two week nights, starting in October and ending in the spring. It is 2 and a half hours a night, with a modular design. The course was developed in the States by unions and employers. Some of the codes are different but most are the same."

Operating Engineers

"There are a dozen different courses, each relating to a different form of equipment; backhoes, graders, dozers, and plant operators. There are also basic instructor training courses, a Train the Trainer course which focuses on teaching adults. We are now offering a two day workshop "written communication" to upgrade the written skills of the staff. We assign people like business agents, training coordinators and instructors to take the course."

Lathers

"Trades training is offered both for Apprenticeship and for Journeymen. There are four years of apprenticeship (weeks of training per year are six, six, six and four). Journeymen upgrading is available on evenings or Saturdays and several courses are available. The courses offered include Steel Studs, Drywall, Metal Lathers, Suspended Acoustic, Suspended Drywall, and Movawall."

Boilermakers

"In the area of trades training we do journeymen upgrading, with a variety of courses, including: Metal Spray Training, Fibreglass, Rigging Upgrading (2 parts) - Fibre Rope and Wire Rope.

Usually courses are for a whole week. We provide courses and they supply their own time. We have slack periods where we offer many of the courses - January or February. We also offer a combined one week "Shop Steward" program which involves safety and leadership in a 40 hour program.

The apprenticeship program is based on hours worked. Some people take three years and some take four years. Entry level trainees begin with 21 weeks in school - a hands-on, lock-step method, dealing with tanks and boilers. This course is done at BCIT and is pre-apprenticeship. After this course the person is formally registered in the Apprenticeship Program. During this stage 6000 hours are spent in the field, and they are brought back into the school twice - a year apart. When the technical training is completed they take the Red Seal TQ Test."

Labourers

"The trades training is a combination of classroom and practical instruction at the job site. There will be a permanent training site at Maple Ridge."

Culinary Workers

"There is no job specific training done through the Union. Most of the job-specific training is done through the employer."

B. ESL

"ESL is not offered by the union and most members don't go to ESL classes on their own. They just pick up the language as they go along." This statement by one respondent pretty well sums up the situation for ESL training. No unions provide this type of training for their members.

As another respondent put it: **"They get that (ESL) on their own. They occasionally ask about courses but more often than not they get this information from members of their own ethnic group."**

C. HEALTH AND SAFETY TRAINING

"The Health and Safety training that we do is to some extent a duplication of what is done by the B.C. Construction Industry Health and Safety Council, except that it is included as part of the apprenticeship program and it is trade specific. The Safety Council courses are not specific to trades."

Other comments on Health and Safety training were:

"Health and Safety and job site safety is done through Bud MacLellan (BC Construction Industry Health & Safety Council) but there is no industrial first aid course so we contract that out. It costs $450.00 per person."

"Health and safety training is mainly on the job-site. We participate with the B.C. Construction Industry Health and Safety Council. There is no in-house safety course. What we are getting is adequate."

"Of training conducted, 95 per cent is trades and 5 per cent is Health and Safety. The B.C. Construction Industry Health and Safety Council do most of the latter."

Responses were consistent in indicating that the major focal point for Health and Safety training is provided through the B.C. Construction Industry Health and Safety Council. Respondents were satisfied with the work done by the Council. Some supplemented that training with additional trade specific health and safety training, although most, it appears, rely substantially on the Council. The Council has developed an effective response to a multi-trade need.

It is obvious from this description that unions are heavily involved in trades training, both at the apprenticeship and journeyman levels. For the most part, this training has been very trade specific with little or no attention to improving reading skills and written and oral communication. The fact that Operating Engineers have recently begun a course on written communications for business agents, training coordinators and instructors shows that an awareness is dawning of the importance of these skills in the overall effectiveness of technical training.

The picture which is revealed in the responses to this question shows a wide variety of situations. For some, most trades training is done at the apprenticeship level (Machinists); for others trades training is very alive and active at the journeyman level as well (Glaziers). We see that pre-apprenticeship training is also offered for some trades through BCIT (British Columbia Institute of Technology (Boilermakers) and that there is significant joint labour/management cooperation in regard to training through Joint Training Committees. In addition, competency based exams are necessary for individuals to pass from the apprentice to the journeyman level. All these factors are important considerations as *SkillPlan* seeks the appropriate initiatives for basic skills acquisition and enhancement.

4. What methods are used to recruit members to training courses?

"There is a drop off after the mandatory training is complete. We do run courses but there is a general lack of interest.....Mini-modules seem to be more successful than other upgrading but often there's not enough registrants to run these."

The purpose of this question was to find out how members learn of training opportunities. The intention was to find out if most information was passed along in a written form or if there were significant variations. This is important information when planning an approach of notification about basic skills training, especially for low literate readers and second language speakers who may not be comfortable with written English.

A newsletter produced by the local union seems to be the most prevalent method to recruit members to training courses. Ten respondents mentioned a newsletter. Sometimes it was augmented by notices posted at job sites or mailed to members.

Twice a year Labourers send brochures to all members letting them know what courses are being offered and when.

Glaziers do a "once a year" survey asking members what courses they would like to have. They then send out application forms and ask for a 50.00 fee which is refundable at the end of the course. The United Association (UA) sends a yearly training bulletin to all members.

The job site is a very important training focal-point for Machinists since Optiline training is portable and is transported on site to the bunkhouses. Word of mouth, notices at job sites and Newsletters are all used by Machinists to recruit members to training. Teamsters made use of both in-house and general advertising.

Recruitment to training opportunities is also done through Training Coordinators' Offices in Kamloops, Prince George and Burnaby (Operating Engineers) and by phone calls (Carpenters).

Perhaps the most innovative method is that used by Boilermakers. Their members can find out about training opportunities on the Job Info-Line which is a recording which also tells about jobs available. Members then phone the office to sign up. Notices are also posted on a bulletin board. Boilermakers have found this method more effective than a Newsletter.

5. How many full time, part time or contractual instructors are presently involved in your members' training?

This question was asked to determine to what extent there is a training culture and a training infrastructure in the member unions. This is important to know since *SkillPlan* initiatives will be built upon existing training infrastructures. It also helps to identify areas where curriculum development approaches may be fruitful. This information is presented here in descending order of numbers, the most trainers to least trainers. Unless otherwise indicated, instructors/trainers are full time.

NOTE: The numbers to some extent reflect the nature and complexity of the trade, the geographic concentrations of members and the organization structure of the unions. What we see here is that some unions have a comprehensive training infrastructure and others do not.

Carpenters	30	instructors (part time)
Plumbers, Pipefitters	20	(18 part time and 2 part time)
IBEW	20	trainers, each with own specialty
Labourers	12	instructors (8 in lower mainland, 3 on Island, 1 in North)
Operating Engineers	9	instructors
Elevator Constructors	5	4 in Vancouver, 1 in Victoria
Ironworkers	4	
Teamsters	2	full time, 2 contractual, and 1 contractual warehouse consultant
Boilermakers	3	full time instructors. For part time, we use company people, one company gives Fibreglass, another does Metal Spray.
Sheet Metal	3	
B.C. Construction Industry Health & Safety Council	4	full time, occasional part time
Bricklayers	2	full time, 1 part time
Glaziers	2	1 is part time
Machinists	2	journeymen trainers and sometimes volunteers (supervisors) on job site

..../continued

Lathers	1	full time and 1 part time. The part time instructor instructs full time but part of the year.
Painters	1	full time, 1 part time
Cement Masons	1	part time
Heat & Frost Insulators	1	part time
	1	full time
Culinary Workers	1	person (part time) for steward training

6. Is there a training plan to train older workers for less physically demanding jobs?

"There is no provision for older workers - it's a physically demanding job and there is no place to move within the trade."

The purpose of this question was to establish whether members doing physically demanding jobs had an alternative type of work within their trade (less physically intensive and perhaps more mentally intensive) as they grew older. Basic skills training would perhaps be an ancillary aspect of training for the target job (if such existed).

The answer to this question indicated that generally workers have few opportunities to move to less physically demanding jobs, and that when they do, these jobs are NOT necessarily more mentally demanding than what they were doing before - in fact generally less so - with the exception of Elevator Constructors switching from construction to maintenance.(See comment below.) This indicates that, while the needs of older workers are an important focus for *SkillPlan*, there is probably little point in trying to focus attention on upgrading **as a response to** specific changes in their work duties. Rather, the approach for older workers might better concentrate on filling their personally identified needs.

All respondents answered that there is no training plan to train older workers for less physically demanding jobs. There were, however, a variety of ways of taking into account the changing work needs of older workers. Here are some of them.

IBEW **"Some aspects of the trade don't create a problem since they are not so physically demanding. In other instances, they can select crews. If pulling heavy cables is required, the older workers will do this since it can be done using equipment."**

Glaziers **"No - not yet, although that is a possibility. Some jobs require a lot of lifting eg. swing stages, lifting units in. Older workers get into supervisory positions or hope the person in charge will take age into account, or perhaps they are good at something like caulking and are better at it than younger people."**

Elevator Construction **"It's possible to assist a member to move from construction to maintenance and service. This can happen in various ways; some work for one employer all their lives - they may come to the union and state that they want to switch to maintenance. Or the employer may say: "We'll train you for maintenance." Or, he will indicate to his supervisor that he wants maintenance. Maintenance is more difficult technically but less demanding physically."**

Teamsters **"There is not a specific plan, but we provide training options for less demanding work."**

Two unions have a special position (limited in number) for older workers or those on medical disability. It is "the Personnel Hoist Operator" for Operating Engineers and the "Tool Crib Attendant" for Boilermakers which does not require additional mental functions to replace decreased physical functioning.

The Carpenters' Union believes that the variety of trades training courses offered allows some flexibility for older workers to find a less physically demanding niche, while Cement Masons referred to older worker subsidization from the Union General Fund. The United Association of Plumbers and Pipefitters encourage computer and estimating courses for older members.

For other unions, the view is that older workers simply leave the trade or take early retirement.

DEMOGRAPHIC INFORMATION - QUESTIONS 7 - 10

7. What are the major ethnic groups of your membership?

The purpose of this question was to establish the extent of ESL needs. The responses were not statistically based but rather were based on "an educated guess" by respondents. This response will be helpful to *SkillPlan* in deciding on where ESL initiatives may best be targetted.

What emerged, generally, is that the B.C. construction industry is characterized by a high number of "born in Canada" members, many second generation European.

Painters have a large number of Italians, while Portuguese and Italians make up a large portion, about 60%, of the Cement Masons' membership, as well as a significant part of the Labourers. Include French for Labourers.

Boilermakers, Heat and Frost Insulators and Elevator Constructors mostly have members who were born in Canada and speak English as their first language. IBEW membership is largely second generation West European, although there are some Europeans from Eastern Europe as well [Poland, Hungary, Romania]. The latter speak English but have trouble with technical terms and terminology.

The Glaziers have a different situation for their inside workers and their outside workers. The outside people are generally North American, while the inside workers' ethnicity is more diverse. Members include significant numbers of Asian/Oriental and East Indian.

Ironworkers have a significant number of native Indian members.

Many Lathers are recent immigrants from Europe but language does not appear to be a major problem. By and large, Culinary Workers have adequate oral skills. Their major ethnic groups are Greek, Yugoslavian and Italian. Born in Canada members are in a minority.

The remaining unions' ethnic makeups were very mixed.

8. Approximately what percentage of your members are:

1. Native Indian
2. Women
3. Immigrants or recent Canadian citizens from non-English speaking countries
4. Born in Canada [excluding native Indian]

There is some overlap between the content of this question and the preceding one. This question, then acted as a verification of the previous one and added **women** to what is otherwise an ethnic characterization.

Only the Ironworkers had a significant number of native Indian members, approximately 10%. All other unions indicated 1% or less.

Women do not form significant numbers in any of the unions except one, although there are several in all unions except Heat and Frost Insulators. Inside Workers of the Glaziers are the exception, with women forming some 15% of that union's membership. The next highest percentage of women is indicated to be in the Painters' Union, and the Culinary Workers, at 5%. Labourers did not respond to this question other than to say that 90% of all flagmen positions are women.

The largest percentage of immigrant members is found in the Cement Masons Union, estimated at 78%, Culinary Workers come second at 60%. Painters and Lathers indicated over 30% immigrant composition. Labourers didn't respond to this question but the percentage can informally be judged to be high. Sheet Metal workers come next with an estimated 18% immigrant membership. Lowest values for this category were given by Operating Engineers and Heat and Frost Insulators, 1% or less.

The "born in Canada" category formed 90% or over for Bricklayers, IBEW, Elevator Constructors, Operating Engineers, Boilermakers and Heat and Frost Insulators. The Sheet Metal estimate for this category is 80%. Ironworkers, Glaziers, excluding inside workers, and Lathers gave estimates in the 70% - 75% range, while the estimate of 50% applied to Painters and Machinists. The lowest "born in Canada" estimate was for Cement Masons at 20%.

9. On average, what is the education level of your members?

"Some have grade 12 on paper but are really at the grade 4 level."

Grade 12	Bricklayers (grade 10 is required as minimum)
	Machinists (used to be grade 10)
	IBEW
	Elevator Constructors
	Carpenters
	Plumbers, Pipefitters
Grade 11	Sheet Metal (Grade 11 -12)
	Painters
	Glaziers
Grade 10	Ironworkers
	Lathers (although 15% have grade 12),
	Boilermakers (but grade 12 maths)
	Heat and Frost
	Culinary Workers
Grade 9 & 10	Operating Engineers
Grade 8 to 10	Cement Masons

Labourers did not respond to this question.

10. What is the age profile of your members? (range and average)

The range of age was generally 18 to 65 although several unions had members in their 70s (Painters, Machinists, Heat and Frost Insulators, Teamsters).

The average age can be broken into five categories of estimates - early thirties, mid to late thirties, early forties, mid to late forties, and early fifties.

<u>Early thirties</u>	
Glaziers	32
<u>Mid to late thirties</u>	
Carpenters	35
IBEW	35
Boilermakers	37
Heat & Frost	37
<u>Early forties</u>	
Lathers	40
Bricklayers	42
Operating Engineers	42
<u>Mid to late forties</u>	
Ironworkers	45
Machinists	45
Elevator Const.	47
Painting	48
<u>Early fifties</u>	
Cement Masons	50
Culinary Workers	50

NOTE: Sheet Metal Workers, Labourers, and Teamsters did not respond to this question.

WORKPLACE INFORMATION (CHANGES IN THE WORKPLACE) - QUESTIONS 11-15

11. Which specialty areas of your members' jobs have been the **most** affected by technological change in the past several years?

12. Which specialty areas have been the **least** affected by technological change in the past several years?

Since these two questions are so closely related, their answers are presented as one unit.

These are key questions, since technological change is judged to be one of the most important factors underlying the need for basic skills upgrading for workers. In the context of construction, if one had to reduce this subject to its most vital elements, some of these main words would emerge:

laser technology
fibre optics
solid state/microprocessor
TIG Welding (Tungsten Inert Gas)
Panelization
Epoxy
Total stationing units

Here are some details.

Laser technology - Bricklayers, Labourers and others now use lasers instead of transits. Lasers have also had an impact on the Machinist job; alignment is becoming more sophisticated because of laser technology, as is seen in the Optiline course offered by the union.

Fibre optics - As Fibre optics replaces copper conductors, members of the IBEW have faced new training needs. Similarly, Elevator Constructors have witnessed a big change in equipment, with the move from conventional relays to **solid state equipment and microprocessors.**

Automatic welding may at one time have seemed futuristic, but it is now a part of the Boilermaker's trade and the Plumbers/Pipefitters. **TIG Welding (Tungsten Inert Gas)** allows welding to take place automatically in fine corners.

Bigger may be best as Bricklayers move to **panelization** instead of hand laying of stone work and as Ironworkers move to large shop components. This means larger capacity hoisting equipment for Operating Engineers. Similarly, Glaziers are looking at structural glazing of unitized curtain walls, where the integrity of the whole wall is at stake. Conversely, the new technology sees Machinists miniaturizing - shrinking bearings and gears and doing the actual fitting of small components.

Chemicals and **epoxies** are changing the Cement Masons' craft, with the greater requirement for reading labels and proportions. The function of surveying in several trades has been revolutionized from using a transit and level to "total stationing units" where information is displayed on a screen. Math is used to chart and graph the information and present it in a field book.

Lathers and Carpenters are now working both with automatic levelling machines and hydraulic scaffolding, while Operating Engineers are finding that the new chemical world has led to new and stringent requirements for hazardous materials (hazmat) cleanup. Similarly, Heat and Frost Insulators are trying new ways to deal with asbestos abatement. Plumbers and Pipefitters are dealing with more sophisticated instrumentation, from pneumatics to electronics, and with plastics and specialty metals.

Add to all the above elements new equipment for spray paint for Painters and sophisticated fire alarms and data systems (voice systems, lighting) for IBEW workers, and one central fact becomes clear. No trade has been untouched by technological change.

Nevertheless, some skill areas within the trades have remained unchanged. In the Painter's domain, brush and roller painting have not changed very much - nor has there been much change for the Cement Mason in regard to floors and patching. The basic Bricklayer job is much the same as ever and Lathers find that installing drywall has become a standard application. General piping and plumbing installation is much as usual.

The same principles of rigging govern the work of the Boilermaker as of yore, and basic rails and brackets continue to be the raw material for Elevator Constructors - even if this equipment is no longer steel but crushed metal. Power wiring and high voltage power remain unchanged for electricians. Culinary Workers in the camps have not experienced significant changes in their work.

What has changed, however, is much vaster than what has not. The trades are in many cases rushing to respond to changes which have already occurred, regardless of the state of readiness. Training and development of worker skills is in the forefront of any response mechanism, and good basic skills (reading, problem solving, mathematical reasoning and writing) are at the core of workers' capacity to adapt.

13. Are you aware of the imminent introduction of new technology in the foreseeable future?

To some extent this question is unanswerable since often change announces itself with a sudden introduction. The purpose of the question, however, was to probe perceptions of change. Here's what our respondents had to say.

Painters see constantly changing materials (paints), while Cement Masons expect to be using a new machine for grouting, done with a pump.

Elevator Constructors expect more developments in the field of fibre optics, and the IBEW expects further changes in data communication - including voice communications.

Machinists, up to now involved in assembly, expect to be more involved in robotics rather than just doing routine placement and bolting.

Ironworkers look toward improved shop-fabricated interior/exterior building components, and the Plumbers/Pipefitters anticipate new developments in welding processes.

Both Lathers and Bricklayers expect widespread use of very different materials. New products used by Lathers may be only one half inch thick instead of two inches, and Bricklayers will be using stone one quarter of an inch thick rather than two inches thick - stone which can be set on plywood, thus saving materials.

The desire for economy exemplified in the Lathers' and the Bricklayers' predictions also applies to the Carpenters who expect to see newer and more efficient methods of getting the job done more economically.

14. Are members troubled by assignments in the following ways?

a. problems with new equipment?
b. difficulty with job assignments?
c. concern about increased reading, writing or maths?

The purpose of this question was to scout out possible areas where basic skills deficits would have an impact.

Six respondents indicated that some members of their union can have problems with new equipment. These respondents cover a variety of trades i.e. Painting, Elevator Constructors, Lathers, Operating Engineers, Teamsters and Labourers. It is important to note that having problems with new equipment does not necessarily indicate a lack of basic skills by the membership since there could be other contributing factors such as complexity of equipment design or inadequate instruction manuals.

Elevator Constructors, Lathers, Teamsters and Labourers also indicated difficulty at times with job assignments, while concern about increased reading, writing and maths was mentioned by Teamsters, Painters, Plumbers/Pipefitters, Glaziers, Elevator Constructors, Lathers, Operating Engineers and Labourers. Boilermakers indicated that there is more concern about blueprint reading than ordinary reading.

One respondent said:

> *"There is a concern about maths. Each year, twice a year, we offer a trades maths course. If we get two people we're lucky. The transit course - they can't do it; it's too hard. They lack the basics. They are afraid to upgrade. The fear of maths is obvious. We are about to introduce a course on trade concepts and then we'll be able to see if they are also afraid of the reading and writing required."*

Another commented:

> *"There are sometimes problems with new equipment and not being aware of new products. There is an increasing need for reading, writing and maths. Many companies are becoming streamlined and require workers to read blueprints, do math layouts and estimate materials....One supervisor can't always supervise 50 workers."*

Yet another respondent indicated:

> *"We don't hear much about it (reading), but understanding technical data on new materials is a problem."*

These comments show that there is an awareness of the vital link between good basic skills and effective responses to requirements at the job site. One respondent even noted that as a result of all the increased reading, writing and maths in his trade, many members **"want out"** of the trade. Other trades were more optimistic, with one comment being: *"The majority of our apprentices and journeymen are sharp at maths. There's no problem."*

15. Are there formal educational requirements for new job openings? If so, do your members meet those requirements?

A. No formal requirements
Cement Masons
Ironworkers
Labourers
Culinary Workers (exception - apprenticeship for cooks)

B. Grade 10
Bricklayers
Lathers (apprenticeship requirement)
Operating Engineers

C. Grade 12 (or GED)
Machinists
Glaziers (prefer grade 12)
IBEW
Elevator Constructors — A committee of three mechanics screens applicants; sometimes we take someone with less than grade 12 although grade 12 is the requirement.

Other responses:
Boilermakers - Completion of apprenticeship is the formal requirement.
Carpenters - Previous experience in job skill is requirement for new job openings.

No response:
Sheet Metal
Heat and Frost

Here is a comment from one of the respondents in Category B above.

"They have to pass a Mechanical Aptitude Test which is based on a provincial exam (using their examples/multiple choice). We were using the provincial exam for a while but had a high rate of failure. Of those who failed, probably 25% of the failures was because of poor reading of the questions - the remainder of the failures related to lack of knowledge on mechanical."

NOTE: This question can be viewed in correlation with Question 9 (average education level of members). One will note that the average level of education may surpass the minimum requirement.

Examples:

Bricklayers require only grade 10 but the average education level is grade 12.

Glaziers prefer grade 12, the average education level is grade 11.

A more detailed inquiry would be necessary to get good comparative information on these two questions for all the unions.

Other relevant information:

Bricklayers

A Trade Qualification Ticket is required for new entrants to the trade from other provinces. They go to school to get the ticket. Sometimes it's not necessary but some companies won't take workers who don't have the ticket. As well, each company can indenture. Training is for both unionized and non-unionized workers, as the federal government won't provide funds unless they take everyone.

Machinists

There is a pre-apprenticeship 10 month course where the TQ is the ultimate goal. You can get the pre-apprenticeship at BCIT, Kwantlen and high schools (mechanical maths). The first part is general; then you specialize. Do you want to be a machinist? A millwright?

ACCESS TO OPPORTUNITIES - QUESTIONS 16 - 22

16. Do members attend local education programs? Are they satisfied with the programs? Have they dropped out of such programs? Why?

In general and taking all responses into account, it appears that only a small number of members of the respective trade unions attend local education courses in the community (adult ed, community college, etc.) There is consensus around the point that, of the small number of people taking such courses, most are satisfied. Conjecture as to reasons for possible dropping out from such courses included: timetable conflicts, structure of the course, content (relevance) of the course.

Respondents were, for the most part, not particularly knowledgeable on this subject. It appears that members do not talk very much about what the courses they take in the community outside of the trade courses provided by the union or by companies.

The types of courses most commonly taken are:

- blueprint
- alignment
- entry level computer training
  (dBase, games, tracking mortgages - generally not word programs)
- electronics
- estimating
- business management
- first aid
- air brakes
- mechanics
- building technology
- labour studies

17. Does the union (or employer) offer a tuition reimbursement program? Do members use it? What kinds of educational programs are they taking?

One view:

"Only a small percentage use it (tuition reimbursement) or are aware of it. We don't promote it much."

The opposite view:

"Yes, there is a tuition reimbursement program and members use it."

Only three respondents answered "no" to this question. Although the other respondents have differing approaches to tuition reimbursement, one aspect seems common - all courses for which there is tuition reimbursement must be trade related. One respondent said "Upgrading in English and Math might be accepted in the future although there has not been much request for it." Here are some of the approaches to tuition reimbursement.

Sheet Metal	No cost to the student.
Bricklayers	A 400.00 bursary to the apprenticeship program. (4 courses a year = 4 bursaries.) Tuition reimbursement on job related training, subject to each case being looked at individually by the Executive Board of the union fund.
Glaziers	50.00 paid up front for union's courses which is reimbursed. No reimbursement for community courses since these courses are generally not applicable enough. For each 6 week term of technical training, of which there are three, a $600 bursary is issued to each union apprentice attending.
Machinists	Apprentices get reimbursement on books and travel - e.g. - from Prince George to Vancouver for training. Assistance for optional training as well if it is job related.
Cement Masons	Tuition reimbursement for safety courses.
IBEW	Tuition reimbursement for courses which are trade related.
Elevators	Companies have reimbursement policy, and also the union will consider reimbursement under the education policy. The course has to be trade related and be material beyond the modules already provided by the union.
Lathers	Full tuition reimbursement if trade related.
Op Engineers	Joint Board gives tuition reimbursement if course is trade related.
Carpentry	Individual reimbursement for journeyman upgrading (22 courses to choose from)
Labourers	Tuition reimbursement for industrial first aid courses (course fee and exam fee) and exam fee for the blaster course.
Boilermakers	No tuition reimbursement as such but we pay for courses they want as a group (rather than going out singly).
Plumbers/ Pipefitters	The committee may reimburse upon application for courses such as gas upgrading, computers, welding automation, and health and safety.
Culinary Workers	A joint union/management fund for tuition for courses pertaining to the industry - e.g. - cooking, pastry.
Teamsters	Tuition reimbursement for credit programs.

18. Do members understand the terms and conditions of their benefits (health, legal, education)?

Ten respondents answered "yes" to this question; two answered "no", and the others qualified their response.

Some of the comments:

"Probably 60 per cent do. The others are bothered by the "legalese". Documents could be presented more simply."

"Basically yes - although many phone to ask".

"No - they don't understand their benefits. They are not trained to listen. They don't understand their paycheques, but are afraid to ask about them for fear of being fired."

"Understanding terms of the agreement is more prevalent for older members. Younger members don't think of these things much."

"Very few".

Boilermakers have an innovative way of ensuring that members understand the terms and conditions of their agreement. It was explained as follows.

"Members understand their benefits because we have meetings where we travel on the road and explain these things to them with overheads and slides. We take with us the H. and W. administrators and the business manager. We do a lot of simplification and present the essential information simply (approximately 40 slides on H. and W. and more on pension). They can also check on their individual contributions at the time of this travelling meeting."

Machinists produce a brochure simplifying the agreement for their members.

19. Are you aware of barriers which may prevent workers from accessing present training opportunities?

Five respondents answered "no" to this question. For those who did perceive barriers to accessing training opportunities, here are some of the specific barriers identified. Those responses which may have a link with literacy are preceded by an asterisk (*)

* Poor self esteem and lack of support from family members
  Duration of training programs
  Conflict with homelife
  Not conveniently located
* Fear of instructors/peers finding out they're not so smart
* A whole book of training materials is given out at once for convenience. This can be intimidating.
* Language barriers inhibit some workers from feeling comfortable in a course where the Language of instruction will be English. (Often non-English workers work together and avoid English for the most part.)
  Lack of funding
* Lack of basic skills
  Fatigue after working all day
  Family commitments
  Transportation
* Poor educational background
  Financial difficulties
* Self imposed barrier created by the fact that the home has not provided for education as a desired value.
  Distance of residence from training facilities
  Timing
  Facilities being used by large numbers of unemployed
* Inadequate information about courses
  Personal reasons
  Lack of access because the employers of some companies do not contribute to the Joint Board and the members employed by that employer are not eligible for training provided by the Joint Board.
  Misdirection of advertising
  Lack of direction from superiors

The eight (8) asterisks * here noted indicate that many barriers relate in some way to the level of basic skills acquisition which members have attained.

20. Is there a training culture within your membership? (In other words, are members accustomed to being involved in training?)

The following respondents indicated that there is a training culture among their membership.

Bricklayers
IBEW
Elevator Constructors (for the 4 years of training)
Ironworkers
Operating Engineers
Boilermakers
Carpenters
Heat and Frost (in apprenticeship only)
United Association of Plumbers and Pipefitters
Teamsters

Two answers were not solidly "yes" or "no". Lathers perceive that they do not have a training culture but do have training opportunities. Labourers report that 10 per cent of their members are trained each year and that it is completely up to them to seek training. Some welcome and seek training opportunities and others never sign up for any training course.

It is interesting to relate this response to the response for question 5 (number of instructors). For the most part, those who report having a training culture also have the largest number of instructors. This indicates that a training culture does not just happen haphazardly and that those unions who do have a training culture have actively fostered it and contributed to it through the strength of their training infrastructure.

21. **In your view, and based on your past experience with training, which of the following approaches would be most likely to win support from your members?**

1. A separate literacy upgrading class not related to trade content;
   OR
   A trade specific class which integrates literacy elements into existing training programs.

2. An approach where worker tutors worker (peer tutoring);

   An approach where an outside adult educator provides instruction
   OR
   An approach where an adult educator and a trades trainer unite to combine literacy and trades instruction.

1. A separate literacy upgrading class (not related to trade content) was favoured by: Painters, Bricklayers, Glaziers, Cement Masons, Lathers, Plumbers/Pipefitters, Carpenters, Labourers, and Culinary Workers.

   A trade specific class which integrates literacy into existing training programs was favoured by the IBEW, Elevator Constructors, Operating Engineers and Heat and Frost Insulators.

   Teamsters were equally in favour of both types of classes.

   Sheet Metal, Ironworkers and Machinists gave no response.

2. Peer Tutoring was favoured by Machinists and Heat and Frost Insulators.

   "An outside adult educator providing instruction" was favoured by Painters, Bricklayers, Glaziers, Lathers, Carpenters, and Culinary Workers.

   "An approach where an adult educator and a trades trainer unite to combine literacy and trades instruction" was chosen by the IBEW, Plumbers/Pipefitters, Elevator Constructors, Operating Engineers and Teamsters.

   The Cement Masons said that *"any would be good (no preference)".*

   Boilermakers said: *"We would rely on our members to tell us which they would prefer. We don't force anything; it is decided democratically."*

   Ironworkers, Sheet Metal Workers and Labourers gave no response.

There is consistency among those who prefer a separate literacy upgrading class and those who prefer that an outside adult educator provide instruction.

One respondent saw this as a pride issue, stating:

"It would be best if the course is not connected with the trade. They'd like to do it on their own so that they won't be embarrassed with the trades instructor."

On the other side of the coin was the respondent who preferred a trade specific approach because, as he put it,

"If they can apply information, then it makes more sense and they can see the need for it."

Notable in its lack of support is the peer tutoring approach to literacy upgrading which was chosen by only two respondents.

The Sheet Metal response for both parts of the question was:

"Literacy would not seem to be a problem."

It is interesting to note that most of the respondents who chose a "trade specific class with combined adult educator/trades trainer instruction" represent unions who do have a "training culture" and a comprehensive approach to training. Two of these respondents have already attempted to come to grips with basic skills in a limited way through special classes or workshops (Operating Engineers and IBEW.)

The purpose of this question was to track perceptions and not necessarily to predict choices and pinpoint courses of action. There is no one approach to basic skills training which will serve the needs of all unions. *SkillPlan* will consult further with individual training plans before becoming involved with them in any one approach or model.

22. Which of the following terms would be most appropriate for your members to describe a new training course?
    - basic skills upgrading
    - communications in the workplace
    - literacy for workers

Six respondents chose "Basic Skills Upgrading" while three favoured equally "Basic Skills Upgrading OR "Communications in the Workplace." 6 chose "Communications in the Workplace". Only one respondent chose "Literacy for Workers", and this respondent was equally in favour of "Basic Skills Upgrading".

Here are some comments.

> *"Avoid the word literacy. We tell them, "You may know this now, but to keep efficient, it's necessary to keep the basic skills upgraded."*
>
> *"I prefer Basic Skills Upgrading. Communications is too vague, and the word literacy may not be understood by some."*
>
> *"I prefer Communications Skills. In our trade 90 per cent of instruction is verbal, and there is only a thirty per cent likelihood of doing it right. Communications skills are essential in the trade - verbal skills at first, but more reading and writing skills as you move up the ladder."*
>
> *"**Literacy** has implications."*

"Basic Skills Upgrading" and "Communications in the Workplace" received even support. The two titles of choice reflect two very valid but differing approaches - one being that even if you have adequate basic skills now, you will need increased (upgraded) skills to cope with change. The other approach looks at literacy skills within the context of total communication - joining reading and writing to the field of oral communication and treating it as an extension.

It is interesting to note that there are two objections to using the word "Literacy" - one being the oft held view that the word literacy is somehow pejorative, and the other being that the concept and meaning of the term may not be understood. This latter point reflects the confusion around the term which exists even in the adult "literacy" community - some seeing it narrowly as focusing on extremely basic skills and some seeing it broadly on a continuum.

RANGE AND COMPLEXITY OF MATERIALS - QUESTIONS 23-27

23. Please indicate which of the following types of materials are used frequently or infrequently by your membership.

Forms for receipt of benefits
Blueprints
Charts, graphs, schematics
Instruction Manuals
Instruction sheets
Reading or writing memos
Collective agreements/legal documents
Health and safety and pension documents

Forms for receipt of benefits are used frequently by:
Glaziers, Machinists, IBEW, Elevator Constructors, Ironworkers, Lathers, Operating Engineers, Boilermakers, Carpenters, Heat and Frost Insulators, and Culinary Workers.

Blueprints are used frequently by:
Sheet Metal workers, Bricklayers (foremen only), Glaziers, Machinists, IBEW, Ironworkers, Lathers, Boilermakers, Carpenters and Labourers.

Charts, graphs, schematics are used frequently by:
IBEW, and Boilermakers.

Instruction Manuals are used frequently by:
IBEW, Elevator Constructors, Lathers, Operating Engineers, Boilermakers, Carpenters, Labourers, Heat and Frost Insulators, and Culinary Workers (cooks).

Instruction Sheets are used frequently by:
Glaziers, Machinists, IBEW, Elevator Constructors, Lathers, Operating Engineers, Boilermakers, Carpenters, Labourers, and Culinary Workers (cooks).

Reading or Writing memos is used frequently by:
Glaziers, Machinists, Elevator Constructors (time sheets), and Carpenters.

Collective Agreements/legal documents are used frequently by:
Bricklayers, Machinists, IBEW, Ironworkers, Operating Engineers, Labourers, Boilermakers, Carpenters, Heat and Frost Insulators, and Culinary Workers.

Health and Safety and pension documents are used frequently by:
Bricklayers, Machinists, IBEW, Carpenters, Ironworkers, Elevator Constructors, Operating Engineers, Boilermakers, Heat and Frost Insulators, and Culinary Workers.

If one looks at the number of respondents using the various forms of documents, from most frequent to least frequent one sees the following profile.

Forms for receipts of benefits	10
Blueprints	10
Instruction Sheets	9
Collective agreements/legal docs	9
Health & Safety/pension docs	9
Instruction Manuals	8
Reading or writing memos	4
Charts, graphs, schematics	2

Teamsters indicated that all forms of materials are used by their members with the exception of blueprints.

Several respondents indicated that some little used types of documents would be useful even though at present they are little utilized. In particular, the comment was made that "we should use graphics more often."

This information will be useful to *SkillPlan* in assessing:

(a) the areas where upgrading will have an impact on the greatest number of people, and

(b) the areas where skills are most likely to be rusty because of low utilization. Being proficient in using those forms of documents least frequently used will be important for workers interested in transferability and promotability, since the least used forms are more often used by supervisors than by other workers.

24. Would you say that most workplace documents which your members deal with fare well or poorly in the following areas?
    - simplicity of message
    - appropriateness of graphics
    - effective use of glossaries to highlight terminology
    - ratio of print to white space on the page
    - emphasis of main idea through boxes, bold type or other means.

Simplicity of message:

Seven respondents chose "well done, reasonably well, or generally good" to describe the simplicity of message in documents used by their members.

One respondent chose "midway".

Five respondents indicated that simplicity of message was "Poor or sometimes poor".

Other comments: "The trade can be as difficult or as simplistic as YOU make it.", and "They (our members) don't use workplace documents."

Some mentioned that "simplicity" differed, depending on the origin of the documents. Documents originated "in house" tend to be more easily understood than those which may come from a manufacturer or an engineering firm.

Appropriateness of graphics:

Only three respondents thought that graphics were well done in the documents used by their members. (Machinists pointed to the Millwright's Manual as providing a good example.)

Five referred to the appropriateness of graphics as being "Poor".

Four respondents said that graphics are not much used.

One said that graphics should be presented more than they are.

One said that graphics use applies only to foremen and supervisors.

Effective use of glossaries to highlight terminology:

Four respondents chose "well done".

Four respondents chose "poor".

Other comments:

"There are no glossaries used; this doesn't exist."

"There are no glossaries used, although this would be useful."

"One book is itself a glossary."

"We're working on this; some of our outdated material doesn't have it."

"We have a trade dictionary." (Boilermakers)

Ratio of print to white space on the page:

Seven respondents thought the ratio was "well done".

Four said it was "poor".

One said "it could be improved" and another said that "pages are crowded".

Emphasis of main idea through boxes, bold type or other means:

Seven thought documents "fare well" in this regard.

Two thought documents were "poor" in regard to emphasis and highlighting.

One said "This does not exist at present."

Another said - "It's up to the instructors - there could be more emphasis on the main idea."

The responses to this question will be important to *SkillPlan* in looking at Clear Language approaches to document design and document adaptation.

25. Do you think trades trainers would benefit from a short course on reading strategies and learning styles.? (in order to better use this information within the trades classes)

Thirteen respondents said "yes".

Two respondents said "no": one because "we're already doing that."

One respondent said "Can't answer."

One said "One trainer would be interested - the other wouldn't be."

26. Are there other issues we should be asking about?

Seven respondents indicated areas of particular concern. Here are their comments.

One respondent mentioned two areas:

"Safety - it's hard to know the level of proficiency in safety - no one knows if it's effective or not if no one gets killed. There is nothing in our system that says that each individual has had x hours of safety training. The B.C. Construction Industry Health and Safety Council is doing it, but the industry member himself is not well versed (other than the safety officers)."

*"Print reading of drawing and graphics is important. Specifications reading - What does **install** mean? What does it include? Also - units of measurement on a drawing, coming up with schedules - doors, paint, wall thickness, locating equipment on drawings and knowing terms (grid liners)."*

Another respondent suggested that *SkillPlan* submit a flyer or newspaper to keep members informed on a regular basis.

Yet another respondent suggested:

"I see a basic need for upgrading at the lower level of skills. Basic maths and science are a real need across trades. Basic to grade 8, and advanced from grade 9 to 11. Programmed instruction only goes so far; it needs to be done in conjunction with a trades course rather than separately."

"Verbal communication is important - being able to express opinions and views."

Another said:

"We haven't found literacy to be a problem."

One comment suggested that the issue of "attitudes towards jobs" was worthy of investigation.

And - this very positive and relevant comment:

"Let's look at distance delivery, the use of computers, and how they can be used for ESL."

27. Which skill is most important to your members? Reading? Writing? Maths?

Ten respondents chose reading as the most important. All of these respondents except two chose maths as the next most important followed by writing.

Three respondents placed maths first, followed by reading.

No respondent chose writing as of first importance.

One respondent did not make a choice, saying

"All are important. Many of our people go through drawings and generate shop working drawings which they communicate on paper or verbally."

One respondent said,

"With reading, it's important to encourage retention, not just that people read but that they can comprehend and retain information."

NOTE: The respondent who chose writing as being almost as high as reading had a strong need for writing while carrying out maintenance functions (time tickets, repair orders).

E. CONCLUSIONS AND RECOMMENDATIONS

The responses to the Basic Skills Needs Assessment questionnaire provide a snapshot of the industry. They reveal the range and scope of training initiatives in general, not just with regard to basic skills but in the fuller dynamics of training. They reveal as well a picture of an industry engulfed in changes - changes in technology, changes in systems, changes in approaches and directions.

While this analysis concentrates on "basic skills" aspects of the trades, it is impossible not to look at the broader picture revealed by the assessment. Indeed, it is the placing of the basic skills aspects within the context of the broader scene that allows us to draw conclusions as to how basic skills upgrading may contribute to a more positive and productive working environment.

Each of the 27 questions asked in the Needs Assessment Questionnaire has provided input to the conclusions and recommendations which follow.

GENERAL INFORMATION

1) Questions 1 to 6 deal with general information and a profile of the delivery of training in the individual member unions.

   Question 1 reveals that there are approximately 45,000 members in the unionized construction sector.

   As indicated in Section D, although each trade is task specific, many share processes such as fabrication and installation. (Glaziers, Lathers, Sheet Metal Workers, Boilermakers, Heat and Frost Insulators). Many trades also share functions such as welding - (Boilermakers, Carpenters, Operating Engineers, Ironworkers), and scaffolding and rigging (Labourers, Carpenters, Boilermakers). If *SkillPlan* is to prepare some generic basic skills modules that are "cross trades" in scope these areas of commonality need to be more fully explored by *SkillPlan* so that basic skills training initiatives may provide relevance across trades.

Recommendation 1

It is recommended that *SkillPlan* further research areas of commonality in function or processes across the trades in order to use this information in designing complementary basic skills training.

2) Cross-referencing question 1 (number of members) and question 5 (number of instructors) shows that in general there is a positive correlation between number of members and number of instructors - e.g. - the Carpenters, who have the greatest number of members (11,500) also have the greatest number of instructors (30). Operating Engineers, Labourers and the IBEW, with the next largest number of members, are also high in the number of instructors, although the relationship is not exact since Operating Engineers, with 10,500 members have fewer instructors (9) than IBEW at 4,500 members and 20 instructors. Nevertheless, in general, there is a logical relationship between the number of members and the number of instructors - except in the case of the Elevator Constructors who have a larger number of instructors than one would expect from the number of members. This anomaly is explained by the complexity of the trade and its concentration in three areas of expertise, all of which need training - construction, repair and maintenance, and its deliberate involvement of a cross section of its skilled members as instructors.

One union has only one part time instructor and three more have one full time and one part time instructor. This raises the question of how these unions will be able to respond to an increasing complexity of training requirements. Unions with such a paucity of training resources may be unable to respond to the most pressing trade specific requirements, let alone basic skills upgrading.

Recommendation 2

It is recommended that *SkillPlan* look at how the network of some 100 instructors can be used to promote the acquisition and enhancement of basic skills within the context of trades training. It is further recommended that attention be given to how *SkillPlan* can reinforce the basic skills training efforts for those unions which have a very low allocation of human resources devoted to training.

3) Question 2 probed whether members move between and among job classifications or if they stick to one skill area. It is clear that workers in many trades have the opportunity to move between and among various jobs within the trade. This is true in the extreme for Labourers (with over 150 specialty areas) and is true to a lesser degree for many other trades including Operating Engineers, Ironworkers, Machinists, Heat and Frost Insulators, Glaziers, Bricklayers and Lathers. On the other hand, Sheet Metal Workers, Painters, Cement Masons and Electrical Workers, as indicated in Part D, tend to concentrate in one skill area.

   This information will be useful to *SkillPlan* if training initiatives are to be targeted toward client need (as can be done through a Literacy Task Analysis.) By knowing the part of the trade toward which the worker aspires, *SkillPlan* will be able to personalize training by building a basic skills curriculum which will address specific learning needs within the trade.

Recommendation 3

It is recommended that, after consultation with training coordinators and selected workers of selected trades, *SkillPlan* conduct a Literacy Task Analysis of a number of jobs within the trade area so that worker basic skills training may be targeted to real needs. Literacy Task Analysis is a process which examines the tasks within jobs with special emphasis on the reading, writing and numeracy components within those jobs. Unions chosen will be those which have indicated a wide choice of specialty areas for workers. The purpose of this initiative is to give workers more confidence and flexibility in accessing new opportunities within their trade.

4) Question 3, which dealt with the types of training presently offered through the unions offered insights in three areas, trades training, ESL and health and safety training.

It is clear that ESL is not an area of involvement for any union. Yet several have substantial ethnic membership (particularly Glaziers-inside workers, Cement Masons and Labourers.)

Recommendation 4

It is recommended that *SkillPlan* obtain or prepare an inventory of facilities where ESL training is available throughout B.C. The inventory should be distributed to all training plan coordinators for dissemination to their members.

Further, *SkillPlan* could consider a specific ESL initiative for one or more of the unions exhibiting the highest number of ethnic members.

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5) Trades training: The responses for Question 3 revealed that some members have difficulties with technical and exam requirements. Further, it was indicated that trades training involves a variety of "actors" - the trade unions themselves, employers, government regulatory bodies and colleges. These facts suggest several possible initiatives for *SkillPlan*.

Health & Safety Training

Respondents indicate that Health and Safety Training of members is well looked after by the B.C. Construction Industry Health & Safety Council. It is evident, however, that there are many complex reading needs and some writing functions during Health and Safety courses. *SkillPlan* will thus liaise with the Council in regard to how it can best address basic skills needs of course participants.

Recommendation 5

It is recommended that *SkillPlan*, in conjunction with the B.C. Construction Industry Health and Safety Council, facilitate both English language learning for immigrant members and acquisition of WHMIS information by preparing a multilingual approach to WHMIS documents (juxtaposition of English and other languages) so that the material may be used as an ESL bridging tool.

6) Recommendation 6

It is recommended that *SkillPlan:*

(a) design & provide a short course for apprenticeship candidates on exam taking strategies

(b) encourage a review of the competency based exams presently being given either through training programs or institutions to assess the degree to which these exams offer an appropriate level of Clear Language and suitable format and content.

(c) prepare an inventory of all training done by employers and suppliers so that *SkillPlan* can liaise with them, as with the union training plans, on matters relating to Clear Language and other basic skills issues (e.g. - Hilti Gun courses, WHMIS, Bricklayers refractory and corrosion courses, Boilermakers courses).

(d) Liaise with trades training coordinators to establish whether there is a cross trade need for a course on powertools. Such a course would be particularly useful for cement masons. The conceptualization and design of such a new course would give *SkillPlan* the opportunity to work with trades trainers on the basic skills elements of such a new course. This could provide a pilot for integration of literacy into technical content.

Question 6 dealt with specific initiatives to train older workers for less physically onerous tasks. As Section D reveals, several unions make provisions for older workers (Elevator Constructors, Boilermakers) but in general not much is done to move workers into less physically onerous jobs as they grow older.

Working in close conjunction with the industry's training spokesmen, *SkillPlan* could identify basic skills profiles for a cross section of jobs which may be of interest to older workers. The profile would assist workers to plan in advance the basic skills upgrading they may need for the future.

DEMOGRAPHIC INFORMATION

7) Question 7 elicited information on the major ethnic groups of the union's memberships. The answer to this question allows *SkillPlan* to determine if a training initiative for a particular union should focus on an ESL approach or a Literacy approach.

Those for which an ESL approach seems warranted include: Painters, Cement Masons, and Labourers.

A literacy approach would fit Boilermakers, Heat and Frost Insulators and Elevator Constructors.

Glaziers provide an opportunity to combine both approaches - inside workers (Asian/Oriental) and outside workers, (North American.)

Question 8 asked what percentage of members are native Indian, women, immigrants or recent Canadian citizens from non English speaking countries, and born in Canada (excluding native Indian).

SkillPlan can use this information to target specific initiatives.

A course for women might begin with Glaziers where women inside workers form 15% of the membership. Painters and Labourers would also be in this category.

Initiatives of an ESL nature might be directed towards Cement Masons (78% immigrant members), Painters, Lathers (30%) and Labourers. An initiative directed toward natives would usefully be directed to Ironworkers where natives form 10% of the membership, as opposed to 1% or less for all other unions.

NOTE: The Needs Assessment shows that the most prevalent languages other than English are Italian, Portuguese, French, East Indian and Asian languages. Several unions have over 90% of their membership "born in Canada". Unions with over 90% of their membership born in Canada and those with few women may wish to examine whether there are barriers preventing minorities and non-traditional groups from accessing these trades.

Question 9, which dealt with average education level of members can also be useful in determining approaches to training, and question 10, age profile, can be used in looking at how basic skills upgrading can be used in career development and planning for an aging workforce.

Recommendation 7

That *SkillPlan* use the information of concentrations of target groups and average education and age levels of memberships in order to plan specific initiatives for target groups, such as:

- **advising training plans of curriculum planning directions which would serve the needs of their membership (e.g. - a course where a large number of Cement Masons would be participating would have a high ESL approach, while a course with many Ironworkers would concentrate on visual and symbolic content to meld with native patterns of learning.)**

- **ensuring that Clear Language approaches and examples are appropriate for various sub-groups, and**

- **planning approaches to basic skill development which take into account the stage that workers are at in their worklife and how basic skills development can facilitate job changes in the later years of the workers' careers.**

WORKPLACE INFORMATION

8) Questions 11, 12 and 13 dealt with technological change . The narrative in Section D shows the wide variety of changes which are revolutionizing every part of the construction industry. In particular, laser technology, fibre optics, solid state/microprocessors, TIG Welding, panelization, epoxy and total stationing units were some aspects which were highlighted in responses to this part of the Needs Assessment Questionnaire.

Recommendation 8

That *SkillPlan* seek from industry participants details of the major changes in technology so that basic skills training programs can reflect the incremental reading, writing, maths and problem solving skills necessitated by these changes.

9) Responses to Question 14 indicated that many workers experience difficulty in these areas, such as: problems with new equipment, difficulty with job assignments and concerns about increased reading, writing or maths.

In particular, blueprint reading was highlighted as a very essential reading skill.

Recommendation 9

It is recommended that *SkillPlan*:

(a) prepare a generic basic skills course focussing on blueprint reading and estimating;

(b) offer assistance to Training Plans which are introducing new courses (to advise on basic skills components of such courses).

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10) Question 15 dealt with formal educational requirements for new job openings. Responses to this question dealt with various exams such as the Mechanical Aptitude Test, or Trade Qualification Tickets. One estimate, as seen in Part D, was that 25% of the failures on a provincial exam were due to poor reading of the questions.

Recommendation 10

It is recommended that *SkillPlan* design a course on mastering the types of reading skills which are necessary for success in a variety of workplace tests and exams in order to assist both apprentices and journeymen who are required to take formal exams.(This recommendation should be implemented in conjunction with Recommendation 6).

ACCESS TO OPPORTUNITIES

11) Responses to question 16 (Do members attend education programs in the community?) showed that most outside education courses taken are in some way job related (See list in Part B). It also indicated that trades trainers were not for the most part aware of what kinds of educational opportunities members were accessing. It is obvious that training is not viewed holistically but as fragments.

Likewise, question 17, which asked about the extent to which tuition reimbursement was available and was used, showed that policy in regard to tuition reimbursement was quite diverse. Some admitted that they did not really promote the policy outside of courses directly tied to the trade. While the training plans will obviously not reimburse programs with no relationship to the trades, there are a broad variety of courses which may have some relationship to career advancement even if not directly related to the trades.

Recommendation 11

It is recommended that *SkillPlan*, in conjunction with the trades training plans, encourage the diversification of the kinds of training which are eligible for tuition reimbursement. This would include courses which lead to basic skills upgrading.

12) Question 18 asked whether members understand the terms and conditions of their benefits (health, legal and education). We learned that there are often problems with "legalese" or with finding information in documents describing benefits.

The responses here indicate a number of needs.

(a) the need for simplification of terms
(b) the need for upgrading reading skills
(c) the need for helping workers to locate essential information
(d) the need to promote active and effective listening skills (when benefits are explained orally)

12) Question 18 asked whether members understand the terms and conditions of their benefits (health, legal and education). We learned that there are often problems with "legalese" or with finding information in documents describing benefits.

The responses here indicate a number of needs.

(a) the need for simplification of terms
(b) the need for upgrading reading skills
(c) the need for helping workers to locate essential information
(d) the need to promote active and effective listening skills (when benefits are explained orally)

Recommendation 12

It is recommended that *SkillPlan* undertake an initiative to provide Clear Language explanations of benefits and collective agreements and explore possible alternative methods of presentation.

It is further recommended that *SkillPlan* design a course on "Locating Information" from diverse documents (an oft neglected literacy skill).

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13) Question 19 which dealt with barriers which may prevent workers from accessing present training opportunities provides insight into attitudinal aspects of training as well as structural barriers which may exist for some workers.

As is seen in Part D, lack of basic skills, poor educational background and lack of education as a family value are among the barriers identified which prevent workers from accessing training opportunities. Language barriers were also identified, as well as fear of exposing lack of basic skills to peers and instructors.

Recommendation 13

It is recommended that *SkillPlan* conduct a more in depth study of the barriers to training opportunities with a view to determining an action plan to reduce those barriers which are within our mandate.

Recommendation 14

It is recommended that *SkillPlan* work with the Trades Training Plans to prepare an inventory of the courses which are available through each training plan, with a view to having a complete picture of the opportunities which are available in each trade.

It is further recommended that *SkillPlan* examine methods of promoting course attendance and in particular that *SkillPlan* examine a variety of course material with a view to assessing the degree to which Clear Language and more diverse presentation of material may lead to increased interest in accessing the range of training opportunities which are available.

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15) Question 20, which sought information on the preferred type of basic skills instruction found a slightly greater response for a "separate" literacy course not related to trade content as opposed to a trade specific class which integrates literacy into existing training programs. However, unions with a "training culture" were more likely to choose the integrative approach. Details on training models can be found in BASIC SKILLS FOR THE WORKPLACE, Chapter 4, Part 1, Taylor, Lewe, Draper (eds) Culture Concepts, Toronto, 1991.

Recommendation 15

It is recommended that *SkillPlan* provide training plan coordinators and instructors with information on the various models of basic skills instruction, including the philosophy, methods and strengths of each model so that they can assess the model which will best fit their needs.

It is further recommended that *SkillPlan* provide one or more sessions on Basic Skills Strategies, in which this subject will be more fully explored.

16) The final area covered in this section of the Needs Assessment asked about the term which would be most appropriate to describe a new training course. Basic Skills Upgrading was most favoured with Communications in the Workplace a close second. There was also support for improving oral skills.

Recommendation 16

It is recommended that *SkillPlan* add Effective Oral Communications to the areas of its mandate and that the ways in which oral communications are used in the construction industry be used as a backdrop for determining approaches to reading, writing and maths upgrading.

It is further recommended that the promotion of courses focus on "basic skills upgrading" and "communicating" and that the word "literacy" be downplayed in the presentation of training options. This approach is in keeping with removing the stigma which accompanies the word "literacy" and is also consistent with the concept of a skills continuum in which individuals display varying strengths demonstrating different skill levels in different endeavours.

RANGE AND COMPLEXITY OF MATERIALS

17) Question 23 sought information on whether various types of workplace documents are used frequently or infrequently by the membership. Responses indicated that Forms for Receipt of Benefits and Blueprints are the most frequently used. Reading or Writing Memos and Charts, Graphs and Schematics were the least used. The areas least frequently used were, however, deemed useful for supervisors.

Recommendation 17

It is recommended that *SkillPlan* design a course on How to Use Forms, such as application forms and forms for receipt of benefits, drawing from examples of real forms in use in the construction industry.

It is also recommended that *SkillPlan* prepare a document on Using Graphs and Charts. This document would focus on the basic skills required to effectively use charts and graphs and would be a resource for trainers.

18) Responses to Question 24 showed that there is no clear consensus as to whether documents fare well or poorly in the areas of: simplicity of message, appropriateness of graphics, effective use of glossaries to highlight terminology, ratio of print to white space on the page, and emphasis of the main idea through boxes, bold type or other means.

It appears, however, that one of the areas of greatest need is the Effective Use of Glossaries to Highlight Terminology - a very effective tool for Clear Language presentation of information.

Recommendation 18

It is recommended that *SkillPlan* offer a Clear Language Consultancy Service to trainers who wish advice on how documents in use could be better moulded to clarity of presentation.

A Glossaries Project would form part of this service. A major aim of the project will be to show how such documents can be used as a means of building skills and aiding in comprehension of complex workplace documents.

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19) Responses to Question 25 show that there is considerable interest in a course for trainers on Reading Strategies and Learning Styles. Only one respondent felt that these areas were already being addressed.

The importance of reading comprehension and retention of information was underlined in the response to the final question of the Needs Assessment which probed the importance of the core basic skills.

Recommendation 19

It is recommended that *SkillPlan* design a session for trainers on Reading Strategies and Learning Styles. The aim of the session is to sensitize trainers to the variety of basic skills needs among trainees and how to help trainees build effective reading and learning strategies.

Recommendation 20

It is recommended that *SkillPlan* prepare a course on Critical Thinking and Problem Solving aimed at a cross section of construction workers who would like to upgrade their skills. This course would serve as a pilot for future initiatives in this area.

F. SUMMARY OF RECOMMENDATIONS

Recommendation 1

It is recommended that *SkillPlan* further research areas of commonality in function or processes across the trades in order to use this information in designing complementary basic skills training.

Recommendation 2

It is recommended that *SkillPlan* look at how the network of some 100 instructors can be used to promote the acquisition and enhancement of basic skills within the context of trades training. It is further recommended that attention be given to how *SkillPlan* can reinforce the basic skills training efforts for those unions which have a very low allocation of human resources devoted to training.

Recommendation 3

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Recommendation 4

It is recommended that *SkillPlan* obtain or prepare an inventory of facilities where ESL training is available throughout B.C. The inventory should be distributed to all training plan coordinators for dissemination to their members.

Further, *SkillPlan* could consider a specific ESL initiative for one or more of the unions exhibiting the highest number of ethnic members.

Recommendation 5

It is recommended that *SkillPlan* in conjunction with the B.C. Construction Industry Health and Safety Council, facilitate both English language learning for immigrant members and acquisition of WHMIS information by preparing a multilingual approach to WHMIS documents (juxtaposition of English and other languages) so that the material may be used as an ESL bridging tool.

Recommendation 6

It is recommended that *SkillPlan:*

(a) design and provide a short course for apprenticeship candidates on exam taking strategies

(b) encourage a review of the competency based exams presently being given either through training programs or institutions to assess the degree to which these exams offer an appropriate level of Clear Language and suitable format and content.

(c) prepare an inventory of all training done by employers and suppliers so that *SkillPlan* can liaise with them, as with the union training plans, on matters relating to Clear Language and other basic skills issues (e.g. - Hilti Gun courses, WHMIS, Bricklayers refractory and corrosion courses, Boilermakers courses.)

(d) liaise with trades training coordinators to establish whether there is a cross trade need for a course on powertools. Such a course would be particularly useful for cement masons. The conceptualization and design of such a new course would give *SkillPlan* the opportunity to work with trades trainers on the basic skills elements of such a new course. This could provide a pilot for integration of literacy into technical content.

Recommendation 7

It is recommended that *SkillPlan* use the information of concentrations of target groups and average education and age levels of memberships in order to plan specific initiatives for target groups, such as:

- advising training plans of curriculum planning directions which would serve the needs of their membership (e.g. - a course where a large number of cement masons would be participating would have a high ESL approach, while a course with many Ironworkers would concentrate on visual and symbolic content to meld with native patterns of learning.)

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It is recommended that *SkillPlan* work with the Trades Training Plans to prepare an inventory of the courses which are available through each training plan, with a view to having a complete picture of the opportunities which are available in each trade.

It is further recommended that *SkillPlan* work with Training Plans to examine methods of promoting course attendance and in particular that *SkillPlan* examine a variety of course material with a view to assessing the degree to which Clear Language and more diverse presentation of material may lead to increased interest in accessing the range of training opportunities which are available.

Recommendation 15

It is recommended that *SkillPlan* provide training plan coordinators and instructors with information on the various models of basic skills instruction, including the philosophy, methods and strengths of each model so that they can assess the model which will best fit their needs.

It is further recommended that *SkillPlan* provide one or more sessions on Basic Skills Strategies in which the subject will be more fully explored.

Recommendation 16

It is recommended that *SkillPlan* add Effective Oral Communications to the areas of its mandate and that the ways in which oral communications are used in the construction industry be used as a backdrop for determining approaches to reading, writing and maths upgrading.

It is further recommended that the promotion of courses focus on "basic skills upgrading" and "communicating" and that the word "literacy" be downplayed in the presentation of training options. This approach is in keeping with removing the stigma which accompanies the word "literacy" and is also consistent with the concept of a skills continuum in which individuals display varying strengths demonstrating different skill levels in different endeavours.

Recommendation 17

It is recommended that *SkillPlan* design a course on How to Use Forms, such as application forms and forms for receipt of benefits, drawing from examples of real forms in use in the construction industry.

It is also recommended that *SkillPlan* prepare a document on Using Graphs and Charts. This document would focus on the basic skills required to effectively use charts and graphs and would be a resource for trainers.

Recommendation 18

It is recommended that *SkillPlan* offer a Clear Language Consultancy Service to trainers who wish advice on how documents in use could be better moulded to clarity of presentation.

A Glossaries Project would form part of this service. A major aim of the project will be to show how such documents can be used as a means of building skills and aiding in comprehension of complex workplace documents.

Recommendation 19

It is recommended that *SkillPlan* design a session for trainers on Reading Strategies and Learning Styles. The aim of the session is to sensitize trainers to the variety of basic skills needs among trainees and how to help trainees build effective reading and learning strategies.

Recommendation 20

It is recommended that *SkillPlan* prepare a course on Critical Thinking and Problem Solving aimed at a cross section of construction workers who would like to upgrade their skills. This course would serve as a pilot for future initiatives in this area.

RECOMMENDATIONS AT A GLANCE
PART 1

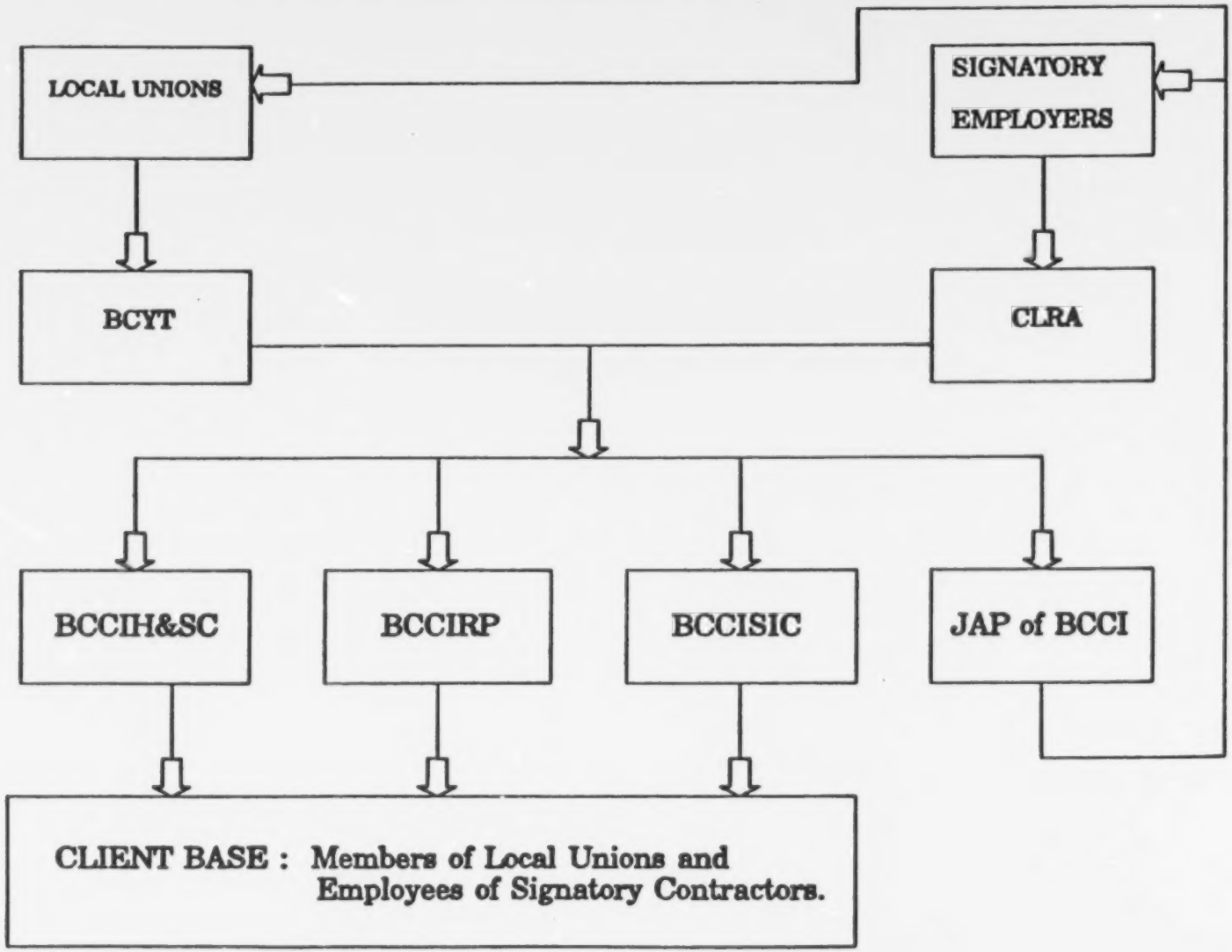
COURSES	
- Exam taking strategies for apprenticeship candidates	*Recommendation 6
- Generic basic skills course on blueprint reading/estimating	*Recommendation 9
- Reading skills for tests/exams for Journeymen and Apprentices	*Recommendation 10
- How to use forms	*Recommendation 10
- Basic Skills Strategies Session, Reading Strategies & Learning Styles	*Recommendation 15,19
- Critical thinking/problem solving course	*Recommendation 20
- Document on graphs and charts	Recommendation 17
- Specialized pilots for specific target groups	Recommendation 7
RESEARCH	
- Areas of commonality in function/processes cross trades	Recommendation 1
- How network of instructors can be used to promote basic skills	*Recommendation 2
- Review of competency based exams	*Recommendation 6
- Information base on major changes in technology for each trade	Recommendation 8
- Study of barriers to accessing training	Recommendation 13
- Study of effective oral communications in the industry	*Recommendation 16
PROMOTION	
- Examine methods of promoting course attendance	*Recommendation 14
INVENTORIES	
- Facilities where ESL training is available throughout B.C.	*Recommendation 4
- All Courses available through each training plan	*Recommendation 14
- All training done by employers and suppliers	*Recommendation 6
SKILLS ANALYSES	
- Literacy Task Analysis of selected jobs	*Recommendation 3
POLICY	
- diversification and communication of tuition reimbursement	Recommendation 11
ADVISORY	
- consultancy service on Clear Language in documents	*Recommendation 18
- advice on basic skills to trainers developing/revising courses	*Recommendation 9
- information on basic skills training models	*Recommendation 15
OTHER INITIATIVES	
- an ESL training initiative	Recommendation 4
- Clear Language explanations of benefits/alternative methods of presentation	Recommendation 12
- multilingual approach to WHMIS as ESL bridge	Recommendation 5

APPENDIX 1

B.C. CONSTRUCTION INDUSTRY SUPPORT STRUCTURE

SkillPlan

BC CONSTRUCTION INDUSTRY SUPPORT STRUCTURE

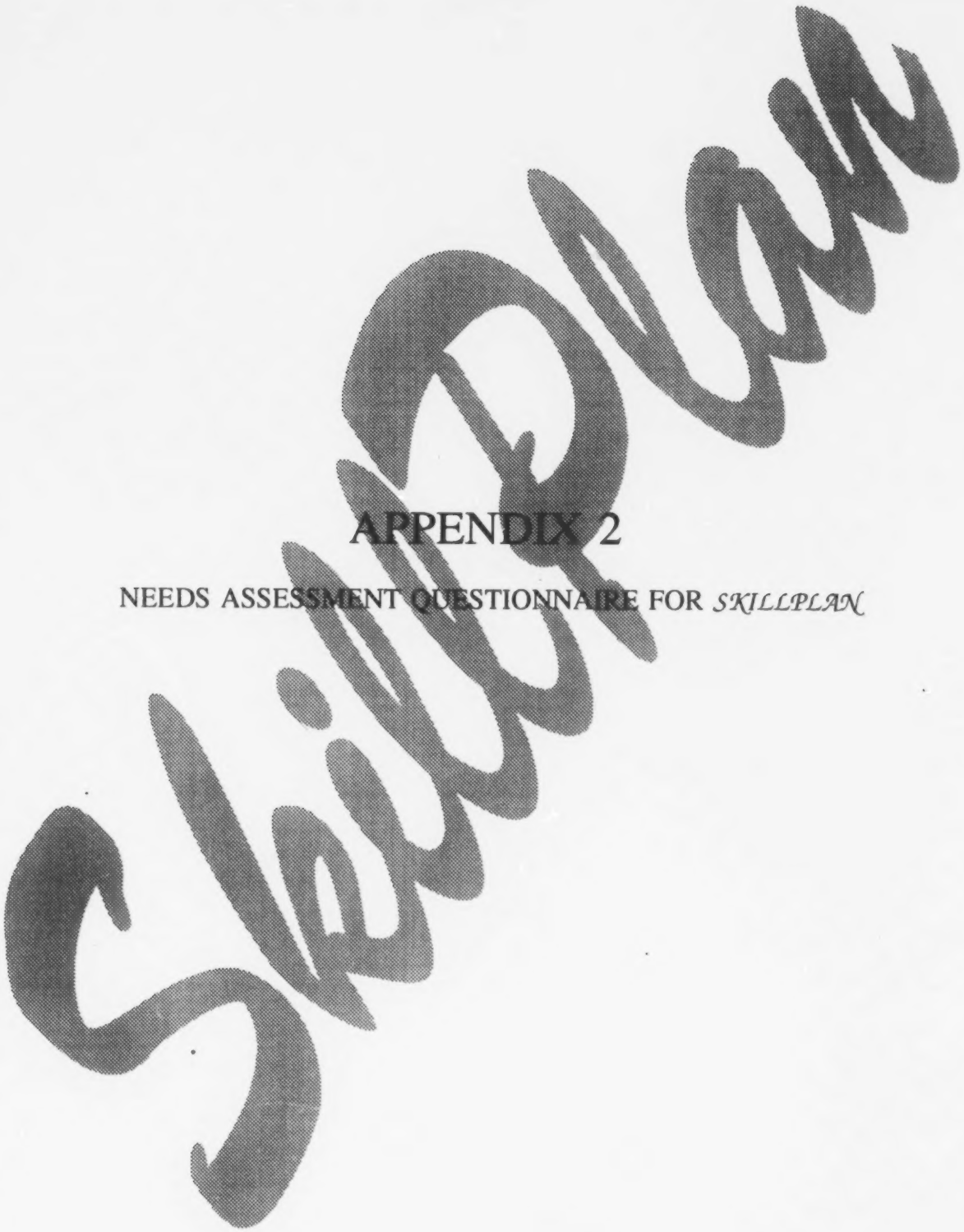


DEFINITIONS

LOCAL UNIONS	Locals of the 16 international unions which are part of the British Columbia and Yukon Territory Building and Construction Trades Council. These locals represent 45,000 members in construction.
SIGNATORY CONTRACTORS	Contractors who are signatory to one or more collective agreements with one or more of the local unions, as defined herein, which covers construction and related work performed by people exercising the craft(s) they represent.
BCYT	British Columbia and Yukon Territory Building and Construction Trades Council, a council of building trades unions which represents those common issues of its constituent unions which the constituents authorize it to. This Council participates in industry labour-management initiatives as CLRA's counterpart.
CLRA	Construction Labour Relations Association, an association made up of those signatory contractors which have joined it. It speaks for 450 contractors in the construction and related industries and is the counterpart to the BCYT.
BCCIH&SC	BC Construction Industry Health & Safety Council, a council set up by the BCYT and CLRA to research, advocate and provide instruction with respect to health and safety issues as they relate to our industry.
BCCIRP	BC Construction Industry Rehabilitation Plan, a council set up by the BCYT and CLRA to research, advocate and provide rehabilitation services with respect to drug & alcohol abuse issues as they relate to our industry.
BCCISIC	BC Construction Industry Skills Improvement Council (*SkillPlan*), a Council set up by the BCYT and CLRA to research, advocate and provide access to suitable upgrading resources with respect to basic skills upgrading issues as they relate to our industry. Providing access can include developing specific curricula to meet some of the unique needs of our industry.

DEFINITIONS

JAP of BCCI	Jap of BCCI (Japlan), a plan set up by the BCYT and CLRA to adjudicate jurisdictional disputes between local unions as defined herein.
Client Base	The employess of signatory contractors, whether actually employed or booked into the dispatch offices of local unions and available for work, or whether the person is normally employed within a bargaining unit represented by a local union or employed in a supervisory capacity.



APPENDIX 2

NEEDS ASSESSMENT QUESTIONNAIRE FOR *SKILLPLAN*

NEEDS ASSESSMENT QUESTIONNAIRE

General Information

1. What are the various jobs that your union's members in British Columbia do? How many members are there in your union in B.C.?

2. Do members move between and among job classifications, or do they tend to stick to one skill area?

3. Which of the following types of training are already being offered:
   - trades training;
   - ESL;
   - Health and Safety Training?

4. What methods are used to recruit members to training courses?

5. How many full time, part time or contractual instructors are presently involved in training?

6. Is there a training plan to train older workers for less physically demanding jobs?

Demographic Information (Best estimate)

7. What are the major ethnic groups of your membership?

8. Approximately what percentage of your members are:
   - native Indian;
   - women;
   - immigrants or recent Canadian citizens from non-English speaking countries;
   - born in Canada (excluding native Indian)?

9. On average, what is the education level of your members? (range)

10. What is the age profile?

Workplace Information (Changes in the Workplace)

11. Which specialty areas of your members' jobs have been the most affected by technological change in the past several years?

12. Which specialty areas have been the least affected by technological change in the past several years?

13. Are you aware of the imminent introduction of new technology in the foreseeable future?

14. Are members troubled by new assignments in the following ways?
   - problems with new equipment;
   - difficulty with job assignments;
   - concern about increased reading, writing or maths.

15. Are there formal educational requirements for new job openings? If so, do your members meet the requirements?

16. Do members attend local education programs? Are they satisfied with the programs? Have they dropped out of such programs? Why?

17. Does the union or the employer offer a tuition reimbursement program? Do members use it? What kinds of educational programs are they taking?

18. Do members understand the terms and conditions of their benefits? (health, legal, education)

19. Are you aware of barriers which may prevent workers from accessing present training opportunities? What are these barriers?

20. Is there a training culture within your membership? (In other words, are members accustomed to being involved in training?)

21. In your view, and based on your past experiences with training, which of the following approaches would be most likely to win support from your members?

1) a separate literacy upgrading class (not related to trade content);

OR

a trade specific class which integrates literacy elements into existing training programs.

2) an approach where worker tutors worker (peer tutoring);
   - an approach where an outside adult educator provides instruction; OR
   - an approach where an adult educator and a trades trainer unite to combine literacy and trade instruction.

22. Which of the following terms would be most appropriate for your members to describe a new training course?
- basic skills upgrading;
- communications in the workplace;
- literacy for workers.

Range and complexity of materials

23. Please indicate whether the following types of materials are used frequently or infrequently by your membership.
- forms for receipt of benefits
- blueprints
- charts, graphs, schematics
- instruction manuals
- instruction sheets
- reading or writing memos
- collective agreement and other legal documents
- health and safety and pension documents

24. In general, would you say that most workplace documents which your members deal with fare well or poorly in the following areas:
- simplicity of message;
- appropriateness of graphics;
- effective use of glossaries to highlight terminology;
- ratio of print to white space on the page;
- emphasis of main idea through boxes, bold type or other means.

25. Do you think trades trainers would benefit from a short course on reading strategies and learning styles? (in order to better use this information within the trades classes)

26. What other training issues are there that we should have asked about?

27. Which skill is most important to members of your trade?
- Reading? Writing? Maths?

BRITISH COLUMBIA AND YUKON TERRITORY CONSTRUCTION INDUSTRY

BASIC SKILLS NEEDS ASSESSMENT

PART II

Prepared through an IAS Agreement with funding from the National Literacy Secretariat and Labour Canada
by Glenda Lewis, *SkillPlan* Skills Analyst
with support provided by the Building and Construction Trades Department, AFL/CIO, Canadian Office

SkillPlan

SUBMITTED BY

Jim Lippert, Executive Director
British Columbia Construction Industry Skills Improvement Council
Approved by *SkillPlan* Board of Directors
June 23, 1992

C:\data\docs\glenda\part2.ass June 26,1992

Part 1 of the Basic Skill Needs Assessment presented the perspective of basic skills training for construction workers as seen through the eyes of Training Plan Coordinators and Trades Trainers.

Part 2 of this Basic Skills Needs Assessment completes the picture by adding the following sections:

1. What Individual Workers Have to Say
   (based on focus groups with four trades)

2. The Management Perspective

3. Meeting the Needs of a Geographically Dispersed Membership
   (based on perspectives gleaned in a March trip to Whitehorse and Castlegar)

4. The Perspective of the B.C. Construction Industry Health
   and Safety Council and the Rehabilitation Plan Coordinator and the counsellors

5. Uses of Computer Assisted and Computer Based Learning

6. Linking to Other Research on Training
   (based on the recently issued report Learning and Work, The Way Ahead for British Columbia, Report of the British Columbia Task Force on Employment and Training, December, 1991).

The recommendations which emerge from Part 2, combined with those from Part 1, provide a prescription for action.

1. WHAT INDIVIDUAL WORKERS HAVE TO SAY

Focus Groups

Focus groups were held with members of four trades. The purposes for meeting with focus groups were to:

a. confirm and clarify the information obtained in Part 1 of the Needs Assessment.

b. expand upon the information obtained in Part 1.

c. obtain a "grass roots" perspective of basic skills upgrading through seeking the views of a cross section of tradespersons.

Focus groups were accordingly arranged with the following groups in British Columbia:

Labourers	Langley	January 29, 1992
Carpenters	New Westminster	January 29, 1992
UA, Plumbers & Pipefitters	Vancouver	January 30, 1992
Operating Engineers	Castlegar	March 4, 1992

Numbers of tradespersons attending the focus groups ranged from 4 to 40 with 20 being the average number.

There was no set structure to the focus groups. While several general questions were asked to focus discussion, every effort was made to allow for a free and natural flow of dialogue with one comment leading to another. This method was used to ensure that the *SkillPlan* team did not impose their own perceptions or agenda upon the groups.

There was a high degree of agreement on a number of issues. Here are some of the findings and observations which emerged from the focus groups.

1. Terminology

Terminology was raised by three of the focus groups.

"Terminology is an important part of trades training. You have to learn the language of the trade." (UA)

"The meaning of a word may not be clear." (Labourers)

"Terminology is especially difficult for workers for whom English is a second language. Many workers for whom English is a second language would be interested in an ESL course if it were trade related." (Carpenters)

"Some published materials are not written in terms which are relevant." (Carpenters)

2. Reading On The Job

The focus groups revealed many different perspectives as to the extent to which reading is an important aspect of jobs. Here are several views.

"Reading in its base elements is not a problem but reading with full comprehension is." (Operating Engineers)

"Labourers do not encounter reading requirements frequently on the job, but, for example in surveying there will be measurements and abbreviations on hub stakes." (Labourers)

"Much learning on the job is done orally, and labourers learn much from co-workers (engineers, plumbers, operating engineers). Some labourers carry a small book with them to note details. Often memory is important and one can use little tricks like repetition." (Labourers)

"You don't need to read on this job - you get your black book. It gives you all the formulas you need." (UA)

3. Maths On The Job

The subject of trades maths was also highlighted.

"Basic maths and trades maths are required. One must be able to describe piping systems and know sizes of pipes." (UA)

"There is an overkill in math in our trade. Instead of worrying about things you have to know in your trade, you spend all your time doing formulas you never have to use." (UA)

"Math is a stumbling block for many. Usually it's the guy who is best who takes the courses - not the guy who needs it most." (Carpenters)

"Some are embarrassed to admit they need a basic maths course." (Carpenters)

4. Drawings On The Job

This subject received attention from one group.

"90 per cent of the time a guy knows how to read drawings. A lot of guys don't even want to look at an installation manual. If someone has problems reading instructions or interpreting drawings, he asks someone else and he shows him how to do it. It all gets done but someone might do it for you." (UA)

5. New Technology and New Equipment

There was agreement that new technology had created new skills requirements.

"New technology has introduced a great deal of electronics and lasers. This has led to new reading needs." (Labourers)

"New equipment often has computer components to operate it. A computer course would thus be useful, specifically on how to use equipment. A more general computer course could also be useful." (Operating Engineers)

"The introduction of new technology has a heavy impact on older workers; the trade has changed a lot since they began - survey instruments and lasers are examples. This has caused more need for technical reading. Some are afraid of this and of the need to use computer technology to run the new equipment." (Carpenters)

"What changes have there been in the past twenty years? Materials have changed, bylaws have changed - also calculating systems. If you took schooling twenty years ago and haven't upgraded, you'd have trouble." (UA)

6. Tests and Exams

This was a subject of universal interest by focus group participants.

"Members could use some help in regard to test taking and exams. A course on exam taking would probably meet with some interest." (Operating Engineers)

"There is a test anxiety. As soon as you mention a test everyone leaves." (UA)

"You take the test, then throw away the paper and do the work." (UA)

"There is a fear of exams - but an exam is required to obtain TQ." (Carpenters)

"Most tests required in Labourers training are practical rather than written, but there are sometimes occasions where a written exam may be necessary. This causes fear." (Labourers)

"A short test taking course would be well received." (Labourers)

"Take a guy who can't write a paper - take him to the fab shop and he can outdo everyone else. Our trade is hands on." (UA)

7. Barriers to Upgrading

There was a wide ranging discussion of barriers.

"Construction workers are often unable to tie themselves to time parameters of courses offered by the colleges." (Operating Engineers)

"Some members do not take advantage of available courses because of time and for financial reasons." (Labourers)

"There are many reasons why workers do not access courses. They are tired by nighttime. There's too much homework with the courses. The class setting is too hot for outside workers. The best idea is day courses for those who are out of work." (Carpenters)

"An unemployed pipefitter knows his UIC might by jeopardized by going to school."(UA)

"Many workers who take outside courses are doing it so that they can get out of the trade - some take business education or computer courses." (Carpenters)

8. Encouragement to Upgrading

"Paid Educational Leave is an incentive. Employers need to provide incentives for workers to take training." (Labourers)

"A combination of encouragements are required if workers are to upgrade their skills - encouragements from unions, employers, and representatives from educational institutions. Many workers need an extra push. Management needs to offer support and recognition to those who take upgrading, and offer opportunities at various levels." (Labourers)

"It might bring out members if they could also involve their spouse in the course and make it a family thing." (Carpenters)

9. Best Times for Upgrading

"Weekends (8 hours Saturdays and Sundays) are the best time for courses." (UA)

"Nights and weekends are the preferred time for courses. An on-site course would be convenient to access at a camp." (Operating Engineers)

"The preferable time to take courses is from January to March or in the fall." (Labourers)

10. How to Promote and Implement Upgrading

"Courses could be promoted in 'ON THE LEVEL'. (Carpenters Union Newspaper). Photos of people taking trades courses are being put near the dispatch area. This shows people in a working mode and promotes that training is the 'in' thing to do." (Carpenters)

"It is not effective to notify workers by letter or printed notice about basic skills courses. Personal contact is better, with a management person being beside the educator in the first contact with the workers when promoting a program. The union rep could also be included." (Labourers)

"Trust is so important. If management takes an educator or SkillPlan person to the job site to promote basic skills opportunities, this will be received better than if co-workers try to promote such participation. It is a matter of trust - workers will feel threatened by co-workers and think that they are "putting them down" in order to steal their job." (Labourers)

"Business agents and shop stewards can promote courses but business agents are seen as being too close to management. It might be perceived as a 'put down' by management." (Carpenters)

"Public schools should do upgrading and have appropriate funding." (UA)

"Upgrading can best be done at a college or other educational institution." (Operating Engineers)

"With ethnic crews, if one or two of them go into a basic skills course, the others will follow." (Labourers)

11. Specific Areas for Upgrading

"Blueprint reading, elevations, vessels, site plans, and general construction are areas for which members have learning needs." (Operating Engineers)

"Preparation for the hoisting ticket and for crusher operator certification could be aided by basic skills upgrading." (Operating Engineers)

"There is some trouble learning the Imperial System." (UA)

"Members would like to take courses in: math, algebra, geometry, report writing, vocabulary expansion, and how to comprehend reading better." (Labourers)

12. Basic Skills for Pre-Apprenticeship and Other Training

"You have to prove competency in order to get into the apprenticeship but it is verbal rather than written. There is an interview. In the '70's guys just started without pre-training." (UA)

"A preparation for pre-apprenticeship course or workshop would be useful." (Operating Engineers)

"Education required is Grade 12. There is six weeks of pre-training before the apprenticeship. Don't call it pre-apprenticeship." (UA)

"The Industrial First Aid Course (WCB and private training schools) is an example of a difficult course. Some labourers have dropped out of it because it was difficult." (Labourers)

"If SkillPlan were to concentrate efforts on the utilities (underground) sector and road building, this would reach a considerable number of the membership." (Labourers)

"There is a need for workers to know more about how to follow instructions. Most people have learned through the education system how to be a follower - they need to know how to be a leader and how to take responsibility." (Carpenters)

13. Role of Foreman and Supervisors

"Teamwork is a major aspect of the Swedish trade experience. Our foremen are untrained in how to promote teamwork." (Carpenters)

"Reading and writing tasks of supervisors include:

writing reports, blueprint reading, daily production reports, diary (noting problems), accident reports, reading specifications, interpretation of design standards." (Labourers)

"Reading needs in the trade haven't changed much - it's up to the foreman to check out the specs and find out what the procedures are and the materials.....25% (maybe) of the members want to be a foreman some day - mostly younger members. The older ones say 'It's too much pressure.'" (UA)

14. Other Comments

"There tends to be overspecialization. No one tries to ensure that the apprentice is learning all the skills. It used to be on the TQ he had to show he had so many hours on various competencies, but now it's 'just drive nails all day'. That means the workers may be lost in certain areas and are unable to diversify. This is a big problem. The company fosters this attitude in many cases. The company attitude is - 'if a guy is proficient where he is, leave him.'" (Carpenters)

"Don't call the courses 'basic'." (Carpenters)

"A mobile course would be desirable, probably in conjunction with the training plan." (Operating Engineers)

"A questionnaire could be distributed to workers slated for the hoisting ticket, seeking their ideas on a communications course." (Operating Engineers)

ANALYSIS OF COMMENTS

The information received from the focus groups confirmed a number of key findings of Part 1 of the Basic Skills Needs Assessment and raised several new areas of discovery.

- Terminology presents a problem in the trades for both native speakers and ESL speakers. Publications are not always available in Clear Language.

- Reading with full comprehension is seen as a problem while basic reading is not. Oral communication and memory are important.

- Not having a good grasp of math can be embarrassing for many workers. Those who most need the upgrading are most unlikely to access it.

- Workers have good coping skills - if one can't read instructions, he will use the buddy system to try to get the job done.

- Electronics, computers and lasers have introduced new reading needs and new concerns.

- Tests and exams create anxiety. Tests are often not relevant, but even in practical areas they cannot always be avoided.

- Many barriers exist which prevent workers from accessing available training opportunities.

- Workers need encouragement to seek upgrading. This encouragement must come from employers, unions and educators. Including family members in training could make it more attractive.

- Weekends and early evenings are the best time for courses - also January to March or in the late fall.

- Personal contact and building on trust are essential elements of promotion of upgrading. Visible management support is essential.

- There are a variety of trade areas which would be more easily learned if they rested on a foundation of strong basic skills. These range from blueprint reading to preparing for a TQ.

- A preparation for pre-apprenticeship would be useful.

- Foremen have many reading/writing needs, and many tradesmen aspire to being a foreman.

- Often there is not diversity and flexibility in the jobs that members are assigned to within their trades.

- A mobile course delivered through the trades training plans is viewed as desirable.

What comes across particularly clearly in the focus groups is that workers would welcome management support and incentives in meeting their basic skills upgrading needs. Indeed the role of management is crucial in several ways. Workers want to know that if they aspire to be a foreman, this goal will be met with management respect and a willingness to provide the necessary training. They want to know that their needs as whole workers are being taken into account - that they will not be required to "drive nails" day after day with no opportunity for a more interesting and diverse work experience.

It was also evident that, as strong as the union based training plan is, workers want to know that management supports their training in a more than perfunctory way.

Part II - Recommendation 1

It is recommended that:

SkillPlan investigate and promote "training recognition" plans or proposals which recognize workers who undertake and complete basic skills upgrading programs in a variety of areas including reading comprehension, writing, maths, ESL, communications, team building, and problem solving.

It is also recommended that the unions or their training plans continue to keep careful records of members' relevant courses to underline the importance of these endeavours and to foster a learning culture.

2. THE MANAGEMENT PERSPECTIVE

There is no one management perspective to basic skills and their place in the industry's well being and growth. Many companies see trades skills as critical but are not fully aware of the delicate balance which exists between a foundation of basic skills and the ability to acquire new trade skills. Companies who see training as an imperative are generally willing to explore the place which basic skills enhancement plays in the lives and productivity of workers. This is indeed positive for *SkillPlan*.

SkillPlan's interaction with several employers has led to the following observations.

1. Companies are concerned that mistakes are being made on the job that could have been avoided if workers had a higher level of basic skill competencies. Stories of confusion abound about the incorrect use of measuring tapes, and the inability to interpret drawings. Such mistakes lead to costly situations such as, for example, stair landings being set in the wrong place. This type of error can take two or three person days to rectify, as in this example, or much longer in a more serious case.

2. There appears to be a desire on the part of management in some companies that a worker at the journeyman, non supervisory level have "enough" information but not "too much" information to do the job. This attitude leads to a conscious policy of not training most workers in a number of areas where they may benefit by gaining greater competence such as the use of blueprints. The attitude that "it's for the foreman to know" can have some unexpected downsides, since it keeps many workers in a static condition. It also may inhibit workers from aspiring to a foreman position since the context of a foreman's job remains a mystery.

3. There is an encouraging openness by some companies to reexamine the way they are doing things. *SkillPlan* these questions from management. "Are we training our people properly?" "What is the problem with the way we're working? "Are the skills of superintendents adequate?" In other cases there is simply a feeling that many of the workers come to the industry with inadequate skills and that the answer is to get rid of those who can't produce.

4. There is a great deal of teaching going on in the construction industry, although it may not be recognized as such. The role that foremen play in imparting knowledge to journeymen is quite striking. Often this involves a type of mentoring in which the foreman tests the journeyman's problem solving ability rather than simply giving directions. This same type of mentoring takes place between a journeyman and an apprentice. Recent Literacy Task Analyses carried out by the Skills Analyst and the Research Director of SkillPlan provided useful information on the importance of this teaching role.

Part II - Recommendation 2

It is recommended that *SkillPlan* work with management and unions to facilitate methods of imparting to foremen information which may help them in the teaching/mentoring role. *SkillPlan's* contribution of a basic skills component to existing foremen's courses could form part of this initiative. It is also recommended that *SkillPlan* establish a more formal link with apprenticeship courses in order to more fully understand the dynamics between apprentices and journeymen in the mentoring process so that sensitivity to this interaction can be built into training initiatives.

3. MEETING THE NEEDS OF A GEOGRAPHICALLY DISPERSED MEMBERSHIP

Meetings in Castlegar, B.C. and Whitehorse, Yukon provide the context for this section of the Basic Skills Needs Assessment.

In early March, 1992, the Executive Director of *SkillPlan* and the Skills Analyst visited the Castlegar Construction Camp at the Celgar Project. The project is utilizing all the trades to complete the rebuilding of a pulp mill. Included in these trades are culinary workers who provide the food and the housekeeping functions required to serve the camp residents.

The camp has the capacity to house 1200 workers and presently houses 850. A tour of the camp, added to a Focus Group with the Operating Engineers working at Castlegar, yielded the following information.

1. The camp, though not far from Castlegar, is in effect a self sufficient unit. Workers are not frequently visiting town. Both work and after hours recreation take place on site.

2. Recreational activities include some television, darts and shuffleboard, and a limited range of magazines. There has been no effort to build a learning environment, though this would be a possible way to spend part of the off work time.

3. Some interest was expressed by workers in having a Learning Centre at the camp in the form of a computer based or computer assisted program. It was felt that the recreation area could house a computer station.

4. One group of workers with special needs at Castlegar are the Culinary Workers. Many are immigrants who could benefit from ESL instruction. In addition, the fact that a sizeable number of members of each trade are living in the same camp provides the context for a multi-trade approach to basic skills upgrading.

In late March, 1992, the Executive Director of *SkillPlan* and the Skills Analyst met with representatives of several trades in Whitehorse, Yukon, and with individuals representing the Department of Education of the Territorial Government, the Yukon Literacy Council, the City of Whitehorse Human Resource Department, and the Yukon Federation of Labour.

A major purpose of this visit was to assess how training needs of construction workers in a northern and remote location would vary from needs identified in the Lower Mainland.

The visit yielded the following information.

1. The unionized sector of the Yukon construction industry is small.

2. A network of trades trainers does not exist in the Yukon. Often workers who require or desire training travel to Vancouver to take training. (e,g. - Operating Engineers travel to the Haney Training Centre to do take training on crane operation.) Similarly, Yukon workers who wish to gain access to the Rehabilitation Plan's services for substance abuse recovery go to the facility in New Westminster.

3. A variety of potential basic skills training partners exists. These include the Yukon Literacy Council, (voluntary sector council receiving some government support), and Yukon College which is dispersed in a variety of locations throughout the Yukon. It should be noted, however, that present interactions with these bodies is small.

The Castlegar and Whitehorse situations have very marked similarities and differences.

In Castlegar, construction workers are isolated from the surrounding city, but are together in common surroundings. In Whitehorse, construction workers are part of the city but are isolated by the fact that no organized training opportunities are available to them in their own geographic location - the Yukon Territory. In both cases, basic skills training needs are not being addressed.

Part II - Recommendation 3

It is recommended that *SkillPlan*

(a) enter into discussions with the BCYT Camp Committee, employers and owners to discuss logistics of placing a computer learning station at a construction camp, and

(b) that *SkillPlan* enter into further discussions with community colleges, including Yukon College, the Yukon Literacy Council, and the Whitehorse Building Trades Office to determine possible learning partnerships.

4. THE PERSPECTIVE OF THE B.C. CONSTRUCTION INDUSTRY HEALTH AND SAFETY COUNCIL AND THE REHABILITATION PLAN

B.C. CONSTRUCTION INDUSTRY HEALTH AND SAFETY COUNCIL

The B.C. Construction Industry Health and Safety Council offers a variety of health and safety courses to the unionized construction sector. The Council also writes manuals and brochures about safety issues such as Working in Confined Space, Hazardous Material and WHMIS. References to the work of the Council are found in the responses to Question 3 of the Basic Skills Needs Assessment Questionnaire in Part 1.

The need for reading technical material during the various courses is unavoidable. In fact, trainees taking the two week Construction Safety Officer (CSO) course are required to read and master a very large manual, as well as Regulations and By-Laws. The Council has noted that some trainees have difficulty both in reading the manual and completing the homework assignments that accompany the course.

Test taking has also presented challenges to many trainees. The Council has been referring some of the trainees with obvious reading difficulties to *SkillPlan* and has asked for *SkillPlan* assistance in determining an effective pre-course screening device.

The link between the interests of the B.C. Construction Industry Health and Safety Council and *SkillPlan* is an obvious one, and it has developed in a strong and co-operative way.

Recommendation

It is recommended that:

> ***SkillPlan* continue to work closely with the B.C. Construction Industry Health and Safety Council on matters of mutual concern, including referrals of trainees to basic skills upgrading, advice on Clear Language approaches to materials development and on approaches to test making and test taking.**

THE REHABILITATION PLAN

As part of the Basic Skills Needs Assessment, the Skills Analyst and the Adult Education Advisor visited the B.C. Construction Industry Rehabilitation Plan Centre on Columbia Avenue in New Westminster.

The Rehabilitation Plan of the British Columbia Construction Industry assists over 150 members each year to overcome a drug or alcohol dependency. The residential approach, combined with the services of skilled counsellors, has provided a useful and successful approach to rehabilitation. A six week residency at the Columbia Avenue facility provides the support and information that participants need to gain the self esteem required to overcome the dependency.

The Plan's administrator and counsellors report that a significant number of their residents have literacy needs which may diminish their capacity to free themselves from their drug/alcohol dependency. In addition, the program requires a great deal of reading, particularly in two of the five weeks of the program. The nature of the readings are such that they cannot be simplified, and they offer a substantial challenge to some individuals.

The Administrator of the Rehabilitation Plan, recognizes the importance of literacy for rehabilitation. *"(Lack of) literacy can sabotage recovery - it's an esteem thing."*, he said.

Given the intensive nature of the Rehabilitation schedule, it was suggested that an "after care" approach would be most suitable,

Recommendation

It is recommended that:

> ***SkillPlan*** **do a short presentation to participants in each cycle of the Rehabilitation Plan's program to make them aware of what basic skills upgrading opportunities are available and to offer them an individualized learning plan after they have completed the residential portion of the program.**

5. USING COMPUTER ASSISTED LEARNING

Computer based and computer assisted learning offers an approach to literacy upgrading which is becoming increasingly popular. Many trainees like the privacy which computer instruction offers, since they don't need to worry about being embarrassed by comparing their own progress directly with other trainees. When computer assisted basic skills upgrading in linked to the services of instructors, (which is what makes it computer 'assisted' rather than computer 'based'), a healthy balance between 'machine' and 'person' is created.

The *SkillPlan*/OLA Basic Skills Upgrading Pilot Project

The *SkillPlan*/OLA Pilot using the American based Josten's Invest Program began in December 1991, ending in June 1992. Since December, over 100 construction workers have participated in the program at the OLA Learning Centre in Burnaby in one or more of three areas, Basic Upgrading, ESL, and GED. Content is adult but is not trade related. Evaluations are not complete but *SkillPlan's* interviews with participants show a high degree of satisfaction with this learning and a desire to continue to improve.

Here are some comments from participants of the *SkillPlan*/OLA pilot in a recent interview with *SkillPlan's* Research Director.

> *"The courses I took before - if I didn't learn it during the class I would have a hard time because then I would go home and I just couldn't follow up studying. Here it's great because if you don't understand something you can just go back and do it again. You learn at your own pace. Nobody is waiting for you."*
>
> *"I feel confident. It has been very helpful."*
>
> *"I was taught here on the computer to read the rules in a given set of problems - not to just "blow into" the answer - that there's a process to go through to do things right .... to slow down a bit."*
>
> *"The tutors are fantastic. They're there when I need them."*

The Job Skills Education Program (JSEP)

The Executive Director of *SkillPlan* and the Skills Analyst visited Hanover, Maryland in early May 1992 to examine the Job Skills Education Program (JSEP). This program was originally developed for the U.S. Military by Dr. Thomas Sticht, and has been adapted now to civilian use. It is based on task analysis of various jobs, and provides a job related prescription for basic skills upgrading. It has highly sophisticated graphics and is adaptable to new content. A recent

Literacy Task Analysis of carpenters and carpenter foremen carried out by the Skills Analyst and the Research Director confirmed that the JSEP prescription for the carpentry trade is both detailed and accurate.

JSEP's job related content makes it an attractive option for trades people who will be able to see trades related applications to the basic skills dealt with in the program. The section on the "oscilloscope" which forms part of the program demo was of high quality and could be perceived as being useful in a cross trades context.

The JSEP Program is 90% computer based (as opposed to computer assisted) which would make it suitable in areas where a support network of basic skills instructors is not present or feasible.

The need for job specific applications as well as more general approaches was indicated by this interview comment from a cement mason.

> *"As a cement mason, you need to know how much concrete you need when you're placing foundations. You've got to figure out so many square feet, so many yards of concrete, so many metres and so on. I would say that 95% of the cement masons in the local, right here in Vancouver that we have now, haven't a clue how to figure it out."*

While the Jostens and JSEP approaches to skills upgrading differ, both offer substantial benefits to construction workers who wish to upgrade their basic skills.

Recommendation

It is recommended that:

SkillPlan **examine options for extending both computer assisted and computer based basic skills upgrading programs appropriate for the geographic area of our mandate. These options will explore possible delivery linkages with the Open Learning Agency, colleges, and learning centres, and the suitability of offering programs in company and union locations.**

6. LINKING TO OTHER RESEARCH ON TRAINING

In December, 1991, Learning and Work, the Way Ahead for British Columbia was issued. The report was based on the work of the British Columbia Task Force on Employment and Training which was announced on August 17, 1989 by the Minister of Advanced Education, Training and Technology. The Task Force Members represented business, labour and education.

The Task Force concluded "that skill requirements for jobs have changed and will continue to change. Individuals with good basic skills - literacy, numeracy and critical thinking - are most likely to adapt successfully to new labour market conditions. This implies that acquiring good basic skills should be promoted in the education system as well as among British Columbians already in the labour force. **Another implication is that workers should be prepared to meet new skill requirements through periodic retraining and upgrading."** (our emphasis)

The development of a training culture was seen by the Task Force as a key policy proposal. They see it this way:

> "There is general agreement in the literature that workplace training and human resource development should become integral parts of the way businesses operate in Canada. Integrating training as part of running a business, and as a normal part of employment, is generally referred to as developing a training culture." (p.37)

A sectoral approach to training is favoured by the Task Force.

Another view of education and training is provided in another study (yet to be released) which deals with the technological and human resource development capacities of various industries. In the chapter on Recent Developments in Selected Occupational and Training Areas, this statement appears.

> "New tools and equipment have made construction work less physically demanding, but increased the mental requirements of some jobs. A British Columbia Building Trades survey of tradespeople and contractors found that construction workers were being required to use a wider range of skills, but used each skill less frequently. The study found fears of de-skilling in certain areas where prefabrication and simplified installation techniques are used."

The research done in these two reports is supportive of industry driven efforts to promote the acquisition and enhancement of basic skills - those parallel skills which, together with trades skills, make up the whole worker.

COMMENT

The Basic Skills Needs Assessment process has provided a wide array of perspectives on how various parts of the industry view training. There is management, with its diversity of philosophies about training. There are unions seeking to make their training plans more attractive and useful for their membership. There are individual workers with at times conflicting attitudes toward upgrading.

What is at the core of the matter is the acceptance by all partners of a training culture - a culture which says, not only that basic skills upgrading is "alright" and "acceptable" but that it is "expected" and "desirable". It is a culture as well which treats upgrading as an investment rather than a cost.

A training culture does not develop and expand overnight. Like the enhancement of basic skills, the development of a training culture which will actively foster that enhancement is on a continuum.

A large part of the *SkillPlan* mandate is to stimulate movement along that continuum so that the parallel skills which are so essential to company productivity and worker satisfaction will be able to grow and prosper.

PART II - RECOMMENDATIONS

Part II - Recommendation 1

That *SkillPlan* investigate and promote "training recognition" plans or proposalswhich recognize workers who undertake and complete basic skills upgrading programs in a variety of areas including reading comprehension, writing, maths, ESL, communications, team building, and problem solving.

It is also recommended that the unions or their training plans continue to keep careful records of members' relevant courses to underline the importance of these endeavours and to foster a learning culture.

Part II - Recommendation 2

That *SkillPlan* work with management and unions to facilitate methods of imparting to foremen information which may help them in the teaching/mentoring role. *SkillPlan's* contribution of a basic skills component to existing foremen's courses could form part of this initiative. It is also recommended that *SkillPlan* establish a more formal link with apprenticeship courses in order to more fully understand the dynamics between apprentices and journeymen in the mentoring process so that sensitivity to this interaction can be built into training initiatives.

Part II - Recommendation 3

That *SkillPlan*

(a) enter into discussions with the BCYT Camp Committee, employers and owners to discuss logistics of placing a computer learning station at a construction camp, and

(b) that *SkillPlan* enter into further discussions with community colleges, including Yukon College, the Yukon Literacy Council, and the Whitehorse Building Trades Office to determine possible learning partnerships.

Part II - Recommendation 4

That *SkillPlan* continue to work closely with the B.C. Construction Industry Health and Safety Council on matters of mutual concern, including referrals of trainees to basic skills upgrading, advice on Clear Language approaches to materials development and on approaches to test making and test taking.

Part II - Recommendation 5

That *SkillPlan* do a short presentation to participants in each cycle of the Rehabilitation Plan's program to make them aware of what basic skills upgrading opportunities are available and to offer them an individualized learning plan after they have completed the residential portion of the program.

Part II - Recommendation 6

That *SkillPlan* examine options for extending both computer assisted and computer based basic skills upgrading programs appropriate for the geographic area of our mandate. These options will explore possible delivery linkages with the Open Learning Agency, colleges, and learning centres, and the suitability of offering programs in company and union locations.

RECOMMENDATIONS AT A GLANCE
PART II

TRAINING CULTURE	
Training Recognition Plans, Proposals	Recommendation 1
COURSE	
Basic Skills Component - Foreman's Course	Recommendation 2
NEEDS OF GEOGRAPHICALLY DISPERSED MEMBERSHIP	
Computer station at a construction camp	Recommendation 3 (a)
Learning partnerships	Recommendation 3 (b)
LINKAGES - HEALTH & SAFETY & REHABILITATION	
BC Construction Industry Health & Safety Council	Recommendation 4
BC Construction Industry Rehabilitation Plan	Recommendation 5
COMPUTER BASED/ASSISTED LEARNING	
Exploring delivery options	Recommendation 6